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ABSTRACT

More than 400 abstracts of dissertations in this latest supplement are listed alphabetically by author in a loose leaf arrangement. This document and the two previous compilations (ED 037 583 and ED 049 391) are designed to provide the teacher, student, and administrator of industrial arts, trade and industrial education, and technical education programs a single source of information regarding the research done in the field from 1930 to the present. Each abstract includes: author, title, degree, date, and granting institution. Most of the abstracts list availability of the document, purpose of the study, sources of data, methods of study, and findings and conclusions. Also included is: (1) a complete alphabetical listing of all abstracts by author and date, (2) an index for dissertation abstracts in industrial arts, (3) a list of abstracts, provided by computer search, of studies classified by single descriptor headings, and (4) a list of abstracts identified in searches using two or three descriptors. Additional supplements are planned on an annual basis. (GEB)

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SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION

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GRONEMAN, CHRIS	1950
GROSS, ANDREW C.	1968

GROTE, CHARLES N.	1960
GROVER, JERRY D.	1968
GROVES, EDWIN D.	1970
GROVES, RAMSEY M.	1966
GRUBER, HERBERT H.	1942
GRUMBLING, HENRY M.	1968
GRUNWALD, WALTER	1968
GUDITUS, CHARLES W.	1965
GUNDERSON, B. HARRY	1949
GUNDERSON, ORLEY D.	1971
GUNTHER, THERESA C.	1931
GYSLER, RANDOLPH L.	1971
HACKETT, DONALD F.	1953
HACKETT, EDWARD V.	1967
HAGEMEYER, RICHARD H	1960
HAGEN, DONALD L.	1972
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HAHN, BRUCE J.	1953
HAHN, MARSHALL S.	1967
HAIGWOOD, THOMAS L.	1959
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HALL, DAVID H.	1971
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HAMMER, GERALD K.	1962
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HAMPTON JR, ISAAC P.	1959
HAMPTON, THOMAS E.	1950
HANCOX, FREDERICK J.	1969
HANEY, PHILIP H.	1949
HANKAMMER, OTTO A.	1936
HANKIN, EDWARD K.	1947
HANKS, WILLIAM S.	1966
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HANSEN, GARY B.	1971
HANSEN, JOHN R.	1970
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HARDING, LARRY G.	1971
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HARPER, HERBERT D.	1934
HARRISON JR, PAUL E.	1955
HARRISON, ELTON C.	1948
HARRISON, OVAL S.	1940
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HARRIS, ROBERT C.	1970
HARRIS, SUE A.	1970
HARRIS, VIRGINIA J.	1961
HARVEY, EDWARD B.	1967
HASH, JOHN A.	1969
HASKELL, ROGER W.	1969
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HEARN, ARTHUR R.	1948
HEATH, JAMES L.	1967
HEEP, RICHARD H.	1939
HEGER, ROBERT J.	1968
HEGGEN, JAMES R.	1967
HEILMAN, CASMER F.	1970
HEIN, EDWARD C.	1969
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HELTON, H. L.	1958
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HENRY, GEORGE F.	1954
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HERBERTS, ROGER E.	1971
HERMAN, JAMES A.	1969
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HERRING, TOD H.	1962
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HICKMAN, KEITH F.	1967
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HISER, PAUL T.	1958
HOBBS, ADDISON S.	1971
HOCH, EMIL H.	1969
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HOERNER, HARRY J.	1969
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HOFER, ARMAND G.	1963
HOFER, JARREL	1969
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HOLMEN, HOLGER E.	19
HOLTROP, WILLIAM F.	1948
HOLT, JAY F.	1970
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HOOTS JR, WILLIAM R.	1966
HOOVER, ROGER L.	1967
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HORBAKE, R. LEE	1942
HORINE, JOHN W.	1961
HORNBLAKE, R. LEE	1939
HORNBUCKLE, GARY D.	1967
HOROWITZ, IRVING L.	1939
HORTON, GEORGE R.	1967
HOSLER, FRED W.	1938
HOSTETLER, IVAN	1945
HOUSEHOLDER, DANIEL	1963
HOUSE, ELAINE	1970
HOUSKA, JOSEPH T.	1971
HOWE, TREVOR G.	1963
HUBBARD, LOUIS H.	1930
HUGHES, WAYNE P.	1942
HUKILL, VIRON N.	1958
HULLMAN, DON H.	1971
HULL, THOMAS F.	1964

HUMBERT 3, JOHN J.	1967
HUMBLE, MILFORD K.	1937
HUNTER, ROBERT F.	1970
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HURLEY, CARL E.	1971
HUSS, WILLIAM E.	1951
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HUXOL, ROBERT L.	1954
HYDER, CARROLL R.	1971
HYDE, ELDON K.	1968
IACOBELLI, JOHN L.	1969
ILOTT, JOHN F. D.	19
INABA, LAWRENCE A.	1970
INGRAM, FRANKLIN C.	1966
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IRGANG, FRANK J.	1956
IRVINE, FLEET R.	1968
ISOM, VERNON H.	1970
IVES, QUAY D.	1971
IVINS, WILSON H.	1947
JACKEY, DAVID F.	1933
JACKMAN, DUANE A.	1961
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JAHRMAN, QUAIN K.	1964
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JANZEN, JOHN W.	1971
JARED, ALVA H.	1968
JARVIS, JOHN A.	1953
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JENKINS JR, JAMES	1955
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JENKINS, NORMAN L.	1969
JENKINS, REESE V.	1966
JENNINGS, GERALD L.	1968
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JENSEN, THOMAS R.	1968
JETTER, EVERETT V.	1932
JOCHEN, ALBERT E.	1947
JOHNSON, DELTON L.	1968
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JORDAN, THOMAS F.	1942
JUDD, WILLIAM P.	1971
JULIAN, LESTER J.	1953
JURALEWICZ, RICHARD	1966
JURKOWITZ, EUGENE L.	1968
KABAKJIAN, EDWARD	1969
KACHEL, STANLEY	1967
KAFFER, FRED C.	1941
KAGY, FREDERICK D.	1959
KAHRMANN, ROBERT G.	1970
KAISER, HAROLD F.	1968
KAISER, HENRY	1968
KAISER, RONALD E.	1971
KANTER, STUART A.	1968
KAPLAN, HAROLD	1956
KAPLAN, WILLIAM A.	1970
KARNES, JOHN W.	1951
KARNES, M. RAY	1948
KARR, DONALD L.	1969
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KASSAY, JOHN A.	1970
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KAVANAUGH, WILLIAM A	1955
KAVICH, LAWRENCE L.	1964
KAVIEFF, MELVIN C.	1961
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KEENER, CLYDE	1959
KEIL, RAYMOND L.	1966
KEIM, LAWRENCE	1966
KEIM, WILLIAM E.	1966
KEITH, CHARLES W.	1964
KELLER, LOUISE J.	1969
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KELLY, WILLIAM T.	1966
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KENNEKE, LARRY J.	1968
KENT, RONALD W.	1931
KEPLER, ATLEE C.	1968
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KESEMAN, CHARLES E.	1967
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KIGIN, DENIS J.	1959
KIMBALL, KENNETH R.	1967
KINGERY, LYLE M.	1963
KING, FRANKLIN J.	1970
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KINKER, H. ROBERT	1949
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KLATT, LAWRENCE A.	1967
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KOCH, NORBERT	1951
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KOHRAM, GEORGE E.	1952
KOLLIN, ROBERT	1971
KOONCE, TOMMY R.	1968
KOO, PO-YEN	1968
KOUTNIK, PAUL G.	1968
KRAFT, RICHARD H.	1967
KRANTZ, MATTHEW B.	1970
KRAUSE, ROY W.	1970
KREIDER, LEONARD E.	1968
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KREPEL, WAYNE J.	1967
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KURTH, EDWIN L.	1955
KURTZ, HARMON H.	1959
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KYNARD, ALFRED T.	1960
LA BOUNTY JR, HUGH C	1961
LAHREN, JAMES A.	1970
LAMBERT, JAMES H.	1940
LANDECKER, LOUIS	1969
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LAND, MING H.	1970
LAND, SAMUEL L.	1931
LANGDON, CHARLES W.	1967
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LANGFORD, AL G.	1969
LANG, EDWARD H.	1942
LANMAN, RICHARD W.	1953
LAPIDUS, GEORGE	1954
LARSON, CURTIS G.	1971
LARSON, DELMAR L.	1964
LARSON, IRVING W.	1969
LARSON, MILTON E.	1965
LARSON, RAYMOND H.	1951
LATHROP, ROBERT C.	1969
LAUBENTHAL, CRAIG D.	1969
LAUDA, DONALD P.	1966
LAWS, NORMAN G.	1966
LE BLANC, DARRELL R.	1971
LEAN, ARTHUR E.	1948
LEAN, ARTHUR E.	1948
LEASE, ALFRED A.	1964
LEAVITT, WILLIAM C.	1969
LEFFARD, WARREN L.	1968
LEHN, LLOYD L.	1967
LEMASTER, LELAN K.	1961
LEMLEY, JOE W.	1970
LEMONS, CLIFTON D.	1965
LENTO, ROBERT	1971
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LESTER, SEELIG L.	1944
LEVENSON, WILLIAM B.	1937
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LICHTBLAU, LEONARD R	1958
LIEN, DAVID A.	1971
LIGHT, KENNETH F.	1967
LINDAHL, DONALD G.	1971
LINDAHL, LAWRENCE G.	1944
LINDAU, ORA F.	1968
LINDBECK, JOHN R.	1958
LINE, JOHN D.	1971
LINKSZ, JAMES J.	1971
LINNICK, IDA	1949
LINTON, JOHN A.	1951
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LLOYD, CLIFFORD J.	
LOATS, HENRY A.	1950
LOCKETTE, RUTHERFORD	1956
LOCKE, LEWIS A.	
LOEPP, FRANZIE L.	1970
LOGUE, JAY L.	1959
LONDON, HOYT H.	1934
LONG, GILBERT A.	1970
LOOSLE, DARRELL K.	1967
LOPEZ, DANIEL C.	19
LOPEZ, GUILLERMO	1970
LOUGHLIN, RICHARD L.	1948
LOVELESS JR, SIDNEY	1969
LOWENSTEIN, NORMAN	1955
LOWMAN, CLARENCE L.	1967
LOW, FRED G.	1963
LUCE, LAWRENCE W.	1957
LUCK, WILLIAM E.	1966
LUCY, JOHN H.	1971
LUDINGTON, JOHN R.	1940
LUNDY, LYNDALL L.	1968
LUTZ, RONALD J.	1969
LUX, DONALD G.	1955
LYBARGER, ALVIN E.	
LYNN, WILLIAM L.	1968
LYONS, RICHARD A.	
MAC DONALD, MANLEY E	1944
MAC DONALD, MANLEY F	1944
MAC LEAN JR, C. B.	1963
MADDOX, MARION E.	1951
MAGENDZO, ABRAHAM	1969
MAGISOS, JOEL H.	1968
MAGOWAN, ROBERT E.	1967
MAHONEY, JAMES H.	1956
MALEY, DONALD	1949
MALIK, JOSEPH A.	1968
MALKAN, JEROME M.	1967
MALLARY, BENJAMIN E.	1932
MANCHAK, PAUL J.	1965
MANESS, MARION T.	1969
MANGANELLI, FRED D.	1959
MANSFIELD, ROBERT T.	1959
MANSFIELD, WESLEY B.	1970
MARBURGER, EDWARD F.	1948
MARBURGER, EDWARD F.	1948
MARCH, BRYCE D.	1961
MARCINOWSKI, MARY E.	1971
MARRAH, JOHN A.	1970
MARSHALL JR, THOMAS C	1941
MARSHALL, CHARLES R.	1971
MARTINEZ, PETE	1970
MARTIN, WALDO D.	1970
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MASON, EMMETT E.	1969
MASON, WILLIAM H.	1970
MASSEY, HAL	1965
MATTESON, GERALD R.	1966
MATTSON, HOMER A.	1970
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MAXCY, ELLIS O.	1941
MAXON, LLOYD M.	1970
MAYER, HERBERT C.	1940
MAYFIELD, WINIFRED A	1970
MAYS, WILLIAM A.	1954
MC ARTHUR, ROSS J.	1955
MC CABE, FRED J.	1970
MC CAGE, RONALD D.	1970
MC CAIN, JERRY C.	1959
MC CALLUM, HARRY N.	1967
MC CLARY, FAY H.	1967
MC CLEARY, JOSEPH L.	1967
MC CLELLAN, LARRY D.	1971
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MC DOWELL, LEONARD C	1964
MC ELHENY, JOHN R.	1960
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MC GAW, SIDNEY E.	1952
MC GIVNEY, JOSEPH H.	1967
MC INNIS, DONALD W.	1971
MC KECHNIE, GRAEME H	1966
MC KEE, RONALD R.	1971
MC KELL, WILLIAM E.	1970
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MC MURRY, JAMES G.	1964
MC NAMARA, JAMES F.	1970
MC NEILL, JOSEPH G.	1970

MC NEIL, JACKSON M.	1968
MC PHERSON, DANIEL W	1971
MC ROBBIE, J. M.	1963
MC VICKER, HOWARD E.	1970
MEHAIL, SPIRU	1971
MEHALLIS, GEORGE	1963
MEIERHENRY, WESLEY C	1946
MEIER, MARY A.	1969
MEISNER, ROBERT G.	1967
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MELLINGER, BARRY L.	1972
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MENEGAT, PAUL A.	1953
MEOSKY, PAUL R.	1967
MERTZ, OTTO	1954
MESSERSCHMIDT, DALE	1967
MESSMAN, WARREN B.	1963
METZLER, JOHN H.	1970
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MEYERS, LARRY D.	1968
MEYER, HARVEY K.	1951
MEYER, JOHN D.	1970
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MICHELSON, EINO S.	1956
MICHIE, JACK	1968
MIDDLETON, WILLIAM H	1962
MIDILI, JOHN A.	1970
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MILLER, L. PAUL	1939
MILLER, MARK E.	1967
MILLER, MURRAY L.	1947
MILLER, THOMAS W.	1958
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MILLS, BOYD C.	1967
MILLS, EARL S.	1971
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MITCHELL, JOHN	1954
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MOELLER, CARL A.	1961
MOHEE, N. F.	1968
MONEY, HOMER E.	1956
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MONRCE, ALLEN L.	1970
MONRCE, H. B.	1960
MONROE, LYNNE C.	1939
MONTELLO, PAUL A.	1968
MOODY, RICHARD D.	1968
MOONEY, JAMES J.	1967
MOON, DONALD E.	1968
MOORE, ALFRED H.	1954
MOORE, LELAND B.	1970
MORELAND JR, HENRY C	1970
MORELAND JR, HENRY C	1970
MORGAN JR, ALFRED D.	1967
MORGAN SR, LEO D.	1966
MORGAN, DARYLE W.	19
MORGAN, JACK W.	1951
MORGAN, J. B.	1961
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MORRISON, JESSIE S.	1969
MORTIMER, WILLIAM E.	1956
MORTON, BERRY E.	1950
MOSLEY, SAMUEL N.	1970
MOSS JR, JEROME	1960
MOULLETTE, JOHN B.	1970
MOUTOUX, ALFRED C.	1948
MUDGETT, ALBERT G.	1958
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MUND, RICHARD G.	1970
MUNISTERI, ANTHONY	1971
MUNS III, NEDOM C.	1969
MURBACH, NELSON J.	1949
MUSGROVE, WILLIAM R.	19
NAGLE, ROLAND F.	19
NAIR, RALPH K.	1950
NANNAY, ROBERT W.	1970
NAROFF, ARNOLD	1971
NEALIS, MICHAEL F.	1951
NEASHAM, ERNEST R.	1963
NEEDHAM, RAYMOND J.	1969
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NEFF, WILLIAM L.	1941
NELSON, A. FRANK	1955
NELSON, HILDING E.	1962
NELSON, HOWARD F.	1953
NELSCN, LLOYD P.	1955
NELSCN, ORVILLE W.	1967
NELSON, REX A.	1963
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NEUFELD, JACOB A.	1968
NEVITT, THOMAS A.	1966
NEWBURY, DAVID N.	1967
NEWKIRK, LOUIS V.	1929
NEWTON, ROBERT E.	1970
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NICHOLSON, DAVID H.	1948
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NICHOLS, JACK D.	1970
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NIENHAUS, BERNARD J.	1971
NILSON, KENNETH	1931
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NOLL, ROBERT F.	1967
NORMAN, RALPH P.	1955
NORRIS, MARSENA M.	1968
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NYSTROM, DENNIS C.	1969
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O NEILL, JACK H.	1954
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OHLSON, ELI E.	1943
OLIVER, WILMUT F.	1967
OLIVER, WILMOT F.	1967
OLIVO, C. THOMAS	1954
OLSEN, EDWARD G.	1937
OLSEN, EUGENE A.	1968
OLSEN, FRED A.	1962
OLSON, DAVID O.	19
OLSON, DELMAR W.	1957
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OPPELT, MARION O.	1967
ORR, RALPH O.	1970
ORR, WILLIAM H.	1970
OSBURN, BURL N.	1939
OTTERSON, PEDER A.	1969
OXLEY, VINCENT E.	1969

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PAINE, HARRY W.	1943
PAINE, OLIVE	1930
PALMER, HAROLD G.	1950
PALOW, WILLIAM P.	1969
PANKOWSKI, DALLAS J.	1966
PAPP, ALEXANDER G.	19
PARDINI, LOUIS J.	1967
PARKES, GEORGE H.	1939
PARKHILL, GEORGE D.	1938
PARKS, DARRELL L.	1968
PARKS, GERALD A.	1969
PARNES, SIDNEY J.	1954
PARRY, ERNEST B.	1968
PASSMORE, JAMES L.	1968
PASTER, JULIUS	1959
PATE JR, DOVE H.	1970
PATTERSON JR, PHILIP	1968
PAULIN, HENRY S.	1964
PAUTLER, ALBERT J.	1967
PAWELEK, ALAN R.	1950
PAWELEK, STANLEY J.	1941
PAYNE, AM V.	1965
PEARSON, WILLIAM W.	1967
PEDERSEN, GEORGE L.	1957
PEEL, NANCY D.	1967
PEERSON, RICHARD H.	1969
PEIFFER JR, HERBERT	1939
PEITHMAN, ROSCOE E.	1955
PELLEGRIN JR, JOSEPH	1971
PENDERED, NORMAN C.	1951
PENN, THOMAS L.	1968
PENNY, FOREST L.	1960
PERDUE, SAUL M.	1954
PERKINS, LAWRENCE H.	1967
PERSHERN, FRANK R.	1967
PERSHING, REX W.	1970
PETERS, DONALD F.	1959
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THE FOLLOWING LIST OF DESCRIPTORS WITH THEIR ABBREVIATIONS, WERE USED TO CLASSIFY THE DISSERTATIONS INCLUDED IN THE COMPILATION OF ABSTRACTS. EACH ABSTRACT WAS GIVEN UP TO 7 DESCRIPTORS. THESE DESCRIPTORS WERE ASSIGNED TO THE DOCUMENT BY THE EDITOR AS A MEANS OF IDENTIFYING THE CONTENTS OF THE STUDY. THE RELATIONSHIP MAY BE DIRECT OR IT MAY BE INFERRED. IN ANY CASE, THE USER WILL HAVE TO MAKE THAT DECISION AS HE USES THE INDEX TO SEARCH OUT IDEAS REGARDING 'WHAT RESEARCH SAYS.'

INDEX FOR DISSERTATION ABSTRACTS IN INDUSTRIAL ARTS

D.L. JELDEN

A

- Accreditation; See CERT
ACHV - Achievement
ACOU - Accountability, Educational
ACTV - Activity
ADED - Adult Education; See CONT
ADMN - Administration; See also LEAD, SUPR
ADVC - Advisory Committees
AERO - Aeronautics and Aerospace; See also Avn
---- - Affective; See ATTD
AIAA - American Industrial Arts Association
---- - American Industry Program; See INPG
APRT - Apprenticeship
ARCH - Architecture
ARTC - Arts and Crafts; See also CRAF
---- - Associate degree; See JUCO, EVFA, PRPL
ATMN - Automation
ATTD - Attitude (Affective)
AUTO - Auto, Auto Mechanics
AV - Audio Visual; See also FILM, INSD, MEDA
AVA - American Vocational Association
AVN - Aviation
AVOC - Avocational (Leisure Time)

B

---- - Bachelors Degree; See GRAD, EVPR, PRPL
BDGT - Budget; See also FINA
BHOJ - Behavioral Objectives; See also OBJ
---- - Bricklaying; See BILD, CNST
BILD - Building Trades; See also CONC, CNST
BIOG - Biographies, Autobiographies
BLMA - Materials (Building and Construction)

C

---- - Cabinet making; See FURN, WOOD
CANA - Canada
CERM - Ceramics
CERT - Certification
---- - Chemistry; See SCIN
CLTH - Clothing and Textiles
---- - Clubs; See AIAA, AVA, NEA, PROR
---- - Cognitive; See KNOW
---- - College; See HIED, JUCO
---- - Community College; See JUCO, HIED
CMPT - Competencies
CNST - Construction; See also BILD, CONC
COE - Cooperative Occupational Education (Workstudy)
COFS - Course of Study
COLR - Color
COMM - Communication; See also GRAP
CONC - Concrete
CONT - Continuing Education; See also ADED
COUN - Counseling; See GUID, VOGI
CPTR - Computer
CRAF - Crafts; See also JEWL
CRCN - Curriculum Construction
CRED - Career Education
CRMD - Curriculum Models
CRTY - Creativity
CULT - Culture
CURR - Curriculum
---- - Curriculum Projects; See IMPG

D

DEMO - Demonstration
DESN - Design
DEYH - Deprived Youth
---- - Disadvantages; See EXCD
DIED - Distributive Education
DISC - Discriptive Geometry
DO - Diversified Occupation
DPOT - Drop-outs
DRAF - Drafting/Drawing
---- - Doctorate; See GRAD, EVPR, PRPL
DVED - Driver Education

E

ELEL - Electricity/Electronics
ELEM - Elementary School
ENGR - Engineering
ENVT - Environmental Concerns
EQIP - Equipment; See also FACP
ETHN - Ethnic Groups
EVFA - Evaluation - Faculty; See also SELF
EVPN - Evaluation - Personnel
EVPR - Evaluation - Program (Learning) (Status) (Planning)
EVST - Evaluation - Student; See also TEST

EXCD - Exceptional Children (Disadvantaged)
EXCR - Extra Curricular
EXPR - Experimental Studies

F

FACP - Facility Planning
FACU - Faculty; See also EVFA
FAID - Financial Aid Federal/State
FILM - Films; See also AV
FINA - Finances; See also BDGT
FLUD - Fluid Power
FORN - Foreign Countries
FORS - Forests
FOUN - Foundry and Patternmaking
FOUP - Follow-up; See also PLAC
FURN - Furniture

G

GNED - General Education
GNSH - General Shop
---- - Gifted; See EXCD
---- - Girls; See WOMN
GRAD - Graduate Programs; See also EVPR, PRPL
GRAP - Graphics; See also PHOT, PRNT, DRAF
GUID - Guidance and Counseling; See also VOGI

H

HS - High School; See also PRSH
HIED - Higher Education (grade 13 plus)
HIST - History

I

---- - Industrial Arts Curriculum Program; See INPG
I.A. - Industrial Arts
I.E. - Industrial Education
---- - Industrial Science; See I.E.
IND.- Industry
ININ - Individualized Instruction; See also PROG
INPG - Innovative Programs
INSD - Instructional Devices; See also AV, FILM, MEDA
INSR - In-Service Education
INSM - Instructional Materials
I.T. - Industrial Technology; See also TECH

J

JEWL - Jewelry and Lapidary
---- - Journalism; See PRNT
JRHS - Junior High School
JUCO - Junior College; See also HIED

K

KNOW - Knowledge

L

LABR - Labor (Unions)
LAOR - Laboratory Organization (Planning); see also FACP
LEAD - Leadership; See also ADMN, SUPR
LEGI - Legislation
---- - Leisure Time; See AVOC
---- - Leather; See CRAF
LIAB - Liability; See also SAFE
LMNT - Laminating
---- - Lumber; See FORS, WOOD

M

MAIN - Maintenance
MANG - Management
MANU - Manufacturing
---- - Materials (Building and Construction); See BLMA
---- - Masters Degree; See GRAD, EVPR, PRPL
---- - Manpower; See VOED, ADED
MATH - Mathematics
MCTG - Micro Teaching
MEDA - Media; See also AV, FILM, INSD, INSM
---- - Mentally Retarded; See EXCD
---- - Mechanical Drawing; See DRAF
MEPR - Metal Process
META - Metallurgy
METH - Methods; See also PROG
METL - Metals; See also FOUN, WELD, SHET
MNIP - Manipulative; See SKIL
MNTR - Manual Training
---- - Molding; See PLAS
MOTI - Motivation
MSPR - Mass Production

N

NDEF - National Defense
NEA - National Education Association

O

OBJ - Objectives; See also BHOJ
OCCU - Occupations
OCIN - Occupational Information (Education)
OCSU - Occupational Surveys
---- - Organizations; See also AIAA, AVA, NEA, PROR

P

PATN - Patternmaking, See FOUN
PERS - Personnel; See also EVPN
PHIL - Philosophy
PHOT - Photography; See also GRAP
PHYS - Physics
PLAC - Placement; See also FOUP
PLAS - Plastics; See also SYNT
POWR - Power; See also AERO, AUTO, FLUD, AVN
PR - Public Relations
PRAR - Practical Arts
PRED - Prediction
PRNT - Printing; See also GRAP
PROB - Problem Solving
PROC - Professional Courses
PROD - Products
PROG - Programmed Learning
PROJ - Projects
PROR - Professional Organizations
PRPL - Program Planning; See also CRCN
PRSH - Private Schools; See also RELG
PRTR - Personality Traits
PSYC - Psychology
---- - Psychomotor; See SKIL, MNIP

R

READ - Reading
RECR - Recreation; See also AVOC
RECT - Recruitment; See also SELC
RELG - Religion; See also PRSH
RES - Research - Research Procedures
---- - Retarded; See EXCD

S

SAFE - Safety; See also LIAB
SCIN - Science; See also PHYS
SELC - Selection; See also RECT
SELF - Self-Evaluation
SHET - Sheet Metal
SKIL - Skill (Psychomotor); See MNIP
---- - Shop Planning; See FACP
---- - Specialist Degree; See GRAD, EVPR, PRPL, HIED
STTG - Student Teaching; See also TEED
SUPR - Supervision; See also ADMN, LEAD
SYNT - Synthetics; See also PLAS

T

TCED - Technical Education
TECH - Technology
TEED - Teacher Education; See also STTG
TEEF - Teacher Effectiveness; See also EVFA
TEST - Test Development; See also EVST
---- - Textiles; See CLTH
T.I. - Trades and Industries
TOOL - Tools
TRAN - Transportation
TRNG - Training

U

---- - Under Prividleged; See EXCD
---- - Unions; See LABR
UNTS - Unit Shop
---- - University; See HIED, JUCO
---- - Upholstery; See FURN
USA - United States of America

V

---- - Videotape; See also FILM, AV, INSD, INSM
VOED - Vocational Education
VOGI - Vocational Guidance; See also GUID
VORE - Vocational Rehabilitation and Retraining

W

WDFN - Woodfinishing
WELD - Welding
WOMN - Women
WOOD - Wood (Forest Products)
---- - Workstudy; See COE, INSR

THE FOLLOWING INDEX IS A COMPILATION OF ABSTRACTS, PROVIDED BY COMPUTER SEARCH, OF STUDIES CLASSIFIED BY SINGLE DESCRIPTOR HEADINGS. IF A DOCUMENT WAS CLASSIFIED UNDER SEVERAL DESCRIPTORS, IT WILL APPEAR IN EACH SINGLE LISTING OF THE DESCRIPTORS ASSIGNED TO IT. THE DOCUMENT ABSTRACT CAN BE FOUND BY LOCATING THE AUTHOR IDENTIFIED IN THE ALPHEBETICAL LISTING OF THE ABSTRACTS PROVIDED.

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ACTV - ACTIVITY

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CLARK, DONALD L.	1967
DOWNS, WILLIAM A.	1968
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GLISMANN, LEONARD W.	1967
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THOMAS, MAURICE G.	1968

ACOU - ACCOUNTABILITY

AUTHOR	DATE
BOYER, JOHN W.	1970

ADED - ADULT EDUCATION

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ADAMS, DEWEY A.	1966
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BARTLETT, WILLIS E.	1967
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GREIL, DARRELL D.	1967
HANSEN, GARY B.	1971
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HUTCHERSON, ETHEL M.	1966
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KAUFMAN, CHARLES W.	1967
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MUND. RICHARD G.	1970
NAGLE, ROLAND F.	19
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O TUEL. MAXCY B.	1969
OSBURN. BURL N.	1939
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SCHOLES. CHARLES E.	1968
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VERMEULEN, ROBERT	1968
WHITE. LELAND W.	1966
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WREN. HAROLD A.	1941

ADMN - ADMINISTRATION

AUTHOR	DATE
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ASHCRAFT, NORMAN C.	1968
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BLACK, RALPH R.	1959
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BLANTON, LLOYD H.	1970
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FORBES. ROY H.	1970
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YOHO, LEWIS W.	1959
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ADVC - ADVISORY COMMITTEES

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CARLSON, HENRY L.	1967
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AERO - AERONAUTICS AND AEROSPACE

AUTHOR	DATE
DOLEZAL, WILMA M.	1968
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AIAA - AMERICAN INDUSTRIAL ARTS ASSN.

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APRT - APPRENTICESHIP

AUTHOR	DATE
BERGVIN, PAUL E.	1945
CRABTREE, JAMES S.	1967
DOBSON, CLIFFORD G.	1956
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ARCH - ARCHITECTURE

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ARTC - ARTS AND CRAFTS

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ATMN - AUTOMATION

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ATTD - ATTITUDE

AUTHOR	DATE
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AUTO - AUTO, AUTO MECHANICS

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AV - AUDIO VISUAL

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SMITH, EARL J.	1968
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WRIGHT, OSCAR W.	1954
YOUNG, WILLIAM H.	1969

AVA - AMERICAN VOCATIONAL ASSN.

AUTHOR	DATE
BARTEL, CARL R.	1959
BELL, CLAUDE A.	1964

AVN - AVIATION

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BRUSH JR, GEORGE W.	1969
FLAHERTY, HUGH	1944
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RINCK, JOE A.	1968
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SIMONS, ROBERT M.	1969
SPAULDING, ROLAND H.	1936
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AVOC - AVOCATIONAL

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BAGLEY, RONALD E.	1965
BENSON, KENNETH R.	1956
BIEDLER, JOHN S.	1958
BURDETTE JR, WALTER	1955
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HUKILL, VIRON N.	1958
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MARSHALL JR,THOMAS C	1941
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NELSON, LLOYD P.	1955
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PHILLIPS, KENNETH	1950
SHOEMAKER, CHARLES E	1961

BDGT - BUDGET

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FOWLER, HARMON R.	1970
GOISHI, FRANK H.	1970
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GRAMBERG, MERLYN L.	1971
HICKMAN, KEITH F.	1967
MC NAMARA, JAMES F.	1970
PARRY, ERNEST B.	1968
ROBERTSON, LYLE R.	1968

BHOJ - BEHAVIORAL OBJECTIVES

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CREMER, KENNETH D.	1970
CREMER, KENNETH D.	1970
FORBES, ROY H.	1970
HARRIS, ROBERT C.	1970
HENNIG, JAMES F.	1970
JONES, CHARLES I.	1967
JURALEWICZ, RICHARD	1966
KRUPPA, RICHARD A.	1970
LARSON, CURTIS G.	1971
NEVITT, THOMAS A.	1966
NORRIS, MARSENA M.	1968
SCHWEINFURTH, LUDWIG	1969
STRICKLAND, THOMAS W	1959
TALKINGTON, JOE E.	1962
VESPER, KARL H.	1969

BILD - BUILDING TRADES

AUTHOR	DATE
BRAME, WILLIAM E.	1967
CASSIMATIS, PETER J.	1967
GALLUP, LELLAND L.	19
KAFFER, FRED C.	1941
NEUBAUER, GERHARDT W	1956

BIOG - BIOGRAPHIES

AUTHOR	DATE
HAMMER, GERALD K.	1962
HEJKAL, OTTO C.	1950
JOHNSTON, KENNETH G.	196[illegible]
LA BOUNTY JR, HUGH O	1961
MOODY, RICHARD D.	19[illegible]
TWOMBLY, ROBERT C.	1968

BLMA - MATERIALS

AUTHOR	DATE
BENJAMIN, NEAL B.	1969
BERGSTROM, PHILIP G.	1970
ENVICK, DONALD D.	1968
JARED, ALVA H.	1968
KAISER, HENRY	1968
KAPLAN, WILLIAM A.	1970
STOKES, VERNON L.	1971

CANA - CANADA

AUTHOR	DATE
GROSS, ANDREW C.	1968
VAUGHN, MAURICE S.	1967

CERM - CERAMICS

AUTHOR	DATE
FRITZ, ROBERT C.	1960
PAULIN, HENRY S.	1964

CERT - CERTIFICATION

AUTHOR	DATE
BAILEY, DONALD A.	1970
BOAZ, HOLLAND E.	1965
BRENCKLE, AUTHUR G.	1968
BROWN, ROBERT D.	1955
CONLEY, FRANKLIN	19
DARDEN, BYRNES L.	1951
EARHART, CECILIA R.	1946
JACKEY, DAVID F.	1933
JOHNSON, ELOUISE E.	1967
LAUDA, DONALD P.	1966
LUCY, JOHN H.	1971
MELLINGER, BARRY L.	1972
ORR, RALPH O.	1970
PFAHL, ALVIN K.	1970
PROCTOR, BERNARD S.	1950
SAYOVITZ, JOSEPH J.	1955
STANTON, WILLIAM A.	1967
STOUGH, KENNETH F.	1968
VAUGHN, MAURICE S.	1967
WALLACE, NORMAN E.	1968
WHYBARK, DAVID C.	1967
WRIGLEY, MARGARET	1968
ZANE, LAWRENCE F.	1968

CLTH - CLOTHING AND TEXTILES

AUTHOR	DATE
BROWN, NATHAN	1954

CMPT - COMPETENCIES

AUTHOR	DATE
BJORNERUD, JAMES A.	1970
EDWARDS, JOHN T.	1970
ENVICK, ROBERT M.	1970
ENVICK, ROBERT M.	1970
FRANTZ JR, NEVIN R.	1967
GALLUP, LELLAND L.	19
GLEASON, WILLIAM E.	1967
GUNDERSON, ORLEY D.	1971
HALE, LESTER W.	1967
HANSBURG, HENRY	1935
HILL, EDWIN K.	1968
JACKMAN, DUANE A.	1961
JOHNSON, ROBERT I.	1958
JOHNSON, WAYNE C.	1969
KEIL, RAYMOND L.	1966
LINDAHL, DONALD G.	1971
MANSFIELD, ROBERT T.	1959
MINELLI, ERNEST L.	1957
STEVENSON, JAMES E.	1953
VANTRUMP, WILLIAM F.	1961
VOLK, VINCENT A.	1955
WALSH, JOHN P.	1958
WRIGHT, LAWRENCE S.	1954
GRAY, JAMES A.	1969
HALE, LESTER W.	1967
HAWLK, ROBERT H.	1960
HOLLOWAY, LEWIS D.	1967
IVINS, WILSON H.	1947
JENSEN, THOMAS R.	1968
KOHRAM, GEORGE E.	1952
LUX, DONALD G.	1955
MALKAN, JEROME M.	1967
MEIERHENRY, WESLEY C	1946
MEISNER, ROBERT G.	1967
MICHELSON, EINO S.	1956
MILLER, CLARENCE M.	1968
MONROE, LYNNE C.	1939
RILEY, E. C.	19
SANDERS, LESTER E.	1967
SCHENCK, JOHN P.	1969
SHERCK, CHARLES P.	1969
SHIBLER, HERMAN L.	1941
SHORE JR, THOMAS C.	1970
SILVEY, WRAY D.	1950
SMITH, FARMER S.	1969
STORY, CHARLES H.	1970
TUTTLE, CHESTER D.	1965
WATERSTREET, DONALD	1969

CNST - CONSTRUCTION

AUTHOR	DATE
BEDNAR, ERNEST G.	1955
BENJAMIN, NEAL B.	1969
BERGSTROM, PHILIP G.	1970
BICKNELL, WILLIAM C.	1942
BOLLINGER, ELROY W.	1950
BOWERS, VICTOR L.	1941
BRAME, WILLIAM E.	1967
BROEMAER, GARY M.	1968
CASSIMATIS, PETER J.	1967
DUFFY, JOSEPH W.	1958
EATON, MERRILL T.	1932
ELLIS, NEIL G.	1966
FOSTER, HOWARD G.	1969
GALLUP, LELLAND L.	19
GLEASON, WILLIAM E.	1967
HAUENSTEIN, ALBERT D	1966
JARED, ALVA H.	1968
JURALEWICZ, RICHARD	1966
KUWIK, PAUL D.	1970
LLOYD, CLIFFORD J.	
PETER, RICHARD F.	1970
REESER, GEORGE W.	1971
THIEME, EBERHARD	1965
VANDEBERG, LOYD W.	1955
VANHERCK, DON V.	1966
WEST, WILLIAM E.	1969
YOUNG, DARIUS R.	1968

COE - COOPERATIVE OCCUPATIONAL EDUC.

AUTHOR	DATE
ALKAN, OMER C.	1969
ARNOLD, FRANK J.	1932
ARNOLD, WALTER M.	1957
BARROW, RICHARD W.	1969
BASKIN, SAMUEL	1954
BENJAMIN, GERALD E.	1968
BERGVIN, PAUL E.	1945
BILLINGS, DONN	1953
BLEDSOE, HARRY J.	1968
CHILSON, JOHN S.	1969
CRUNKILTON, JOHN R.	1969
DOBSON, CLIFFORD G.	1956
DRAKE JR, FRANCIS U.	19
EDDY, EVAN M.	1956
FARAHBAKHSHIAN, EBRA	1967
GELINAS, PAUL J.	1954

COFS - COURSE OF STUDY

AUTHOR	DATE
AXELROD, AARON	1951
BUXTON, ROBERT E.	1960
DAVIS, WARREN C.	1936
FEIRER, JOHN L.	1946
GOLD, CLARENCE H.	1967
HENNIG, JAMES F.	1970
HOLT, JAY F.	1970
INGRAM, MAURICE D.	1971
KAPLAN, HAROLD	1956
KAPLAN, WILLIAM A.	1970
KELLY, MICHAEL V.	1968
KING, THOMAS G.	1958
KLEIN, CHARLES T.	1942
LESTER, SEELIG L.	1944
MAHONEY, JAMES H.	1956
MC KENZIE, CHARLES R	1971
SALMON, DANIEL A.	1965
SELLON, WILLIAM A.	1950
SILVIUS, HAROLD G.	1946
SPAULDING, ROLAND H.	1936
THORNTON, ROBERT W.	1971
TUTHILL, RUSSELL	1970
VOELKNER, ALVIN R.	1970
ZABCIK, CALVIN L.	1969

COMM - COMMUNICATION

AUTHOR	DATE
HAMPTON JR, ISAAC P.	1959
JASNOSZ, THOMAS A.	1969
KAEFER, FRED C.	1941
WAINA, RICHARD B.	1969
ZIEL, HENRY R.	1961

CONC - CONCRETE

AUTHOR	DATE
BERGSTROM, PHILIP G.	1970

CONT - CONTINUING EDUCATION

AUTHOR	DATE
ADAMS, DEWEY A.	1966
ADAMS, ROBERT W.	1947
BLOCK, MURRAY H.	1953
FURLONG, JOHN	1957
SCHOLES, CHARLES E.	1968
SEAMAN, DON F.	1968
WILLIAMSON, MERRILL	1958
WREN, HAROLD A.	1941

COUN - COUNSELING

AUTHOR	DATE
ANDERSON, EDWARD C.	1970
BERGSTROM, HOWARD E.	1965
BOLICK, GERALD M.	1968
BOTTOMS, JAMES E.	1965
BOVENIZER, ELDRED R.	1968
BRADLEY, HARRY L.	1967
BRINKMAN, FRED J.	1970
CASNER, DANIEL	1950
CHILSON, JOHN S.	1969
CLEVELAND, JOHN M.	1961
CLIFTON, RONALD J.	1970
CORMACK, ROBERT B.	1970
D COSTA, AYRES G.	1968
DODGE, ARTHUR F.	1935
DOERR, JOHN J.	1967
DUTT, KARL F.	1969
ELLIOTT, BURTON L.	1971
GARBEE, EUGENE E.	1949
GEARING, PHILLIP	1970
HATALSAN, JOHN W.	1963
HELBERG, DONALD H.	1969
HYDE, ELDON K.	1968
JOHNSON, DONALD H.	1966
KEIM, LAWRENCE	1966
LOOSLE, DARRELL K.	1967
MAC DONALD, MANLEY E	1944
MASON, WILLIAM H.	1970
MC CALLUM, HARRY N.	1967
MEIER, MARY A.	1969
OMAN, RONALD N.	1971
PASSMORE, JAMES L.	1968
PRUSKI, JOHN	1958
PUGH, DWIGHT A.	1969
REAMS, JAKE W.	1963
RELYEA, GLADYS M.	1937
SCHELLER, THOMAS G.	1967
SHAW, GERALD H.	1968
SMITH, ROYAL E.	1969
SOLIMAN, ABDALLA M.	1967
SOLTYS, ROBERT G.	1971
STENSON, ORVIS J.	1971
STILLERMAN, MANUEL	1970
THORPE, CLAIBURNE B.	1968
TICHENOR, HAROLD D.	1967
VAN DERSLICE, JOHN F	1967
WERNER, WAYNE E.	1969
WINDLE, JIM L.	1968
WITT, HENERY F.	1971
WOJCIK, JAMES A.	1971
WOOD, GRANT R.	1970
WOOD, GRANT R.	1970
WYNNE, ROBERT L.	1968

CPTR - COMPUTER

AUTHOR	DATE
ANDERSON, RICHARD B.	1970
BARBER, CARL S.	1967
BIEKERT, RUSSELL G.	1971
CAMPBELL, CLIFTON P.	1971
DONADIO, BLASE	1969
GIERKE, EARL W.	1970
GRUMBLING, HENRY M.	1968
HARDING, LARRY G.	1971
HORNBUCKLE, GARY D.	1967
JORDAN, KENNETH F.	19
KELLY, MICHAEL V.	1968
NOVOSAD, JOHN P.	1971
ROSSER, ARTHUR J.	1968
UMSTATTD, WILLIAM D.	1970

CRAF - CRAFTS

AUTHOR	DATE
BENSON, KENNETH R.	1956
GARBEE, EUGENE E.	1949
GLISMANN, LEONARD W.	1967
OSBURN, BURL N.	1939
RICH, MILDRED K.	1958
ROBBINS, EVELYN G.	1949
SEEHOFF, JESSE	1942
SOLIMAN, ABDEL RAZEK	1970
TRAPANESE, MENNA G.	1964
VANN, LOWELL C.	1970
ZANKOWICH, PAUL	1956

CRCN - CURRICULUM CONSTRUCTION

AUTHOR	DATE
ABITIA, FREDDIE	1971
ALGER JR, LEON J.	1967
ANDERSON, DONALD N.	1963
ANDERSON, HERRERT A.	1953
BICKNELL, WILLIAM C.	1942
BRANTNER, SEYMOUR T.	1962
BROOKER, GEORGE R.	1970
BUDKE, WESLEY E.	1970
CAMPBELL, CLIFTON P.	1971
CAMPION, HOWARD A.	1941
CARTER, JOHN P.	1970
CAULEY, MICHAEL J.	
CHUANG, YING C.	1967
COCHRAN, LESLIE H.	1968
COLEMAN, WAYNE D.	1967
CONNER, JOHN D.	1971
CRAWSHAW, MARSHALL R	1950
CREMER, KENNETH D.	1970
DAVIS, JIM L.	1966
DITLOW, GEORGE H.	1956
DOELLINGER, KEITH E.	1971
EISS, ALBERT F.	1954
ENGELBART, LEON P.	1970
EVANS, HARRY L.	1953
FARAHBAKHSHIAN, EBRA	1967
FARR, WILBUR J.	1958
FECIK, JOHN T.	1970
FOSS, MAURICE F.	1953
GERBER, RUSSELL L.	1965
GLEASON, WILLIAM E.	1967
GOLDBERG, JOEL	1971
GOLD, CLARENCE H.	1967
GOSSAGE, LOYCE C.	1967
GRAHAM, GREGORY S.	1971
GRANNIS, GARY F.	1970
HENDRIX, WILLIAM F.	1967
HUNTER, ROBERT F.	1970
HUSUNG, WILLIAM T.	1970

INGRAM, MAURICE D.	1971
JOHNSON, DOUGLAS H.	1969
JOHNSON, HARRY L.	1955
JOHNSON, ROBERT U.	1968
JULIAN, LESTER J.	1953
KAPLAN, WILLIAM A.	1970
KAVANAUGH, WILLIAM A	1955
KETCHAM, GEORGE W.	1963
KLEIMAN, HERBERT S.	1966
LARSON, DELMAR L.	1964
LEVENSON, WILLIAM B.	1937
LINTON, JOHN A.	1951
LLOYD, CLIFFORD J.	
LOATS, HENRY A.	1950
LONDON, HOYT H.	1934
LUX, DONALD G.	1955
MARTIN, WALDO D.	1970
MEYER, HARVEY K.	1951
NOVOSAD, JOHN P.	1971
OXLEY, VINCENT E.	1969
PATE JR, DOVE H.	1970
PHARES, GAIL J.	1962
POWER, ANDREW T.	1955
ROSSER, ARTHUR J.	1968
ROSS, B. JOHN	1971
ROWNTREE, URWIN	1951
RUSSELL, SAMUEL F.	1966
SANDBERG, NINA M.	1968
SCHMITT, MARSHALL L.	1953
SCHREIBER, ERNEST	1967
SEIGLER, CLAUDE I.	1970
SHIGETOMI, SAMSON S.	1970
SNITZ, RUBEN H.	1931
SORENSEN, RONALD L.	1964
SPAZIANI, RICHARD L.	1972
STADT, RONALD W.	1962
STERN, JACOB	1964
STRANDBERG, C. E.	1963
STRONG, MERLE E.	1958
TAYLOR JR, HOUSTON	1968
THORNTON, ROBERT W.	1971
TUTHILL, RUSSELL	1970
VOELKNER, ALVIN R.	1970
WAITKUS, LORIN V.	1971
WAKITA, OSAMU A.	1970
WALSTON, HARRY W.	1970
WENIG, ROBERT E.	1970
WENTZ, CHARLES H.	1969
WILMOTT, JOHN N.	1941
WITHERSPOON, EVERETT	1971
WOLANSKY, WILLIAM D.	1968
ZABCIK, CALVIN L.	1969
ZAREISN, SOLEIMAN	1969

CRED - CAREER EDUCATION

AUTHOR	DATE
CORMACK, ROBERT B.	1970
COONY, EDWARD R.	1953
KEPLER, ATLEE C.	1968
WHATLEY, ALICE E.	1967

CRMD - CURRICULUM MODELS

AUTHOR	DATE
BOYER, CAROLINE K.	1966
COBURN, JAMES M.	1969
CRAIG JR, WILLIAM L.	1970
ENGELBART, LEON P.	1970
GRONEMAN, CHRIS	1950
HARRIS, RICHARD	1970
HUNTER, ROBERT F.	1970
INABA, LAWRENCE A.	1970
MARSHALL, CHARLES R.	1971
MC NAMARA, JAMES F.	1970
MEIER, MARY A.	1969
NEEDHAM, RAYMOND J.	1969
O NEILL, JOHN N.	1971
OGUNNIYI, OMOTOSHO	1969
OLSON, HERBERT A.	1970
SCHWEINFURTH, LUDWIG	1969
UXER, JOHN E.	1967
WELSH, BARTON W.	1971
WIGGS, GARLAND D.	1971

CRTY - CREATIVITY

AUTHOR	DATE
ABROMAITIS, JOSEPH J	1969
ANDERSON, DONALD N.	1963
BABCOCK, JAMES G.	1969
BARLOW, GARY C.	1967
BATES, WILLIAM M.	1969
CANTOR, ROBERT L.	1952
CLAY, KENNETH R.	19
COLLONS, RODGER D.	1967
CRAFT, CLYDE O.	1967
DUENK, LESTER G.	1966
GARBEE, EUGENE E.	1949
GHEEN, W. LLOYD	1970
GHEEN, WILLIAM L.	1970
HAHN, MARSHALL S.	1967
HANKS, WILLIAM S.	1966
HARNEY, LEON T.	1967
IRVINE, FLEET R.	1968
ISOM, VERNON H.	1970
MAGOWAN, ROBERT E.	1967
MC NEILL, JOSEPH G.	1970
PHILLIPS, KENNETH	1950
RICH, MILDRED K.	1958
SOLIMAN, ABDALLA M.	1967
SOMMERS, WESLEY S.	1961
STELZNER, RAYMOND R.	1969
TUCKER, CASEY A.	1965

CULT - CULTURE

AUTHOR	DATE
EVANS, HARRY L.	1953
HILL, JAMES L.	1953
PHILLIPS, KENNETH	1950
SWAENGSUGDI, THANOO	1959

CURR - CURRICULUM

AUTHOR	DATE
ABRAHAM SR, ANSLEY A	1956
AGUIRRE, EDWARD	1966
ALLEN, WILSON S.	1936
ANDERSON, ERNEST F.	1966
ANDERSON, HERBERT A.	1953
BAILEY, GERALD D.	1964
BAILEY, MILTON J.	1968
BAKER, GLENN S.	1968
BAS, RADHA C.	1950
BEARDEN, WILLIAM W.	1967
BECKER JR, CHARLES W	1967
BEKTON, WILLIAM E.	1965
BERRY, ARTHUR D.	1967
BIEWALD, EDWARD C.	1969
BLACK, RALPH R.	1959
BLEEKE, MILTON H.	1968
BOONE, JAMES L.	1966
BORUM, JOHN F.	1969
BOWERS, VICTOR L.	1941
BOWMAN, JAMES E.	1958
BOWSER, JAMES A.	1960
BRENHOLTZ, GERALD S.	1967
BROEMAER, GARY M.	1968
BROWN, GEORGE C.	1963
BRUSH JR, GEORGE W.	1969
BZOWSKI, EDWARD D.	1969
CAMPBELL, ROBERT A.	1961
CAMPION, HOWARD A.	1941
CARR, EVA R.	1970
CAULEY, MICHAEL J.	
CHAMPION, GEORGE	1965
CHATFIELD, WILLIAM D	1955
CHUANG, YING C.	1967
COCHRAN, LESLIE H.	1968
COLEMAN, WAYNE D.	1967
CORFIAS, JOHN C.	1967
CRABTREE, JAMES S.	1967
CRAWFORD JR, BRYANT	1961
CRAWFORD, HAROLD W.	1960
DANOVITZ, SAUL	1957
DARDEN, BYRNES L.	1951
DAVENPORT, JOE D.	1959
DAVIS, JIM L.	1966
DECKER, HOWARD S.	1953
DENNIS, ERVIN A.	1966
DITZLER, WALTER E.	1953
DOTY, CHARLES R.	1968
DOWNS, WILLIAM A.	1968
DRAZEK, STANLEY J.	1950
DUNCAN, GLENN S.	1950
EATON, MERRILL T.	1932
ELDER, WALTER T.	1941
ELLINGTON, MARK	1936
ENGELBREKTSON, SUNE	1951
FALLS, JOHN E.	1968
FECIK, JOHN T.	1970
FISHER, RICHARD E.	1956
FLEMING, BRUCE E.	1969
FLUCK, BRYAN V.	1970
FORKNER, WILLIAM R.	1968
FOSTER, ROBERT J.	1969
FRITZ, ROBERT C.	1960
GADBOIS, ROBERT L.	1968
GILLIE SR, ANGELO C.	1967
GLOGOVSKY, RONALD J.	1970
GOLDBERG, JOEL	1971
GOLD, CLARENCE H.	1967
GOLOMB, ARTHUR E.	1962
GRANNIS, GARY E.	1970
GRIFFIN, RAYMOND V.	1965
GRONEMAN, CHRIS	1950
GUDITUS, CHARLES W.	1965
HAMPTON JR, ISAAC P.	1959
HANKIN, EDWARD K.	1947
HANSEN, JOHN K.	1970
HANSEN, MAX F.	1964
HARPER, HERBERT D.	1934
HARRISON JR, PAUL E.	1955
HARRIS, RICHARD	1970
HARRIS, VIRGINIA J.	1961
HAUENSTEIN, ALBERT D	1966
HAUER, NELSON A.	1949
HAUSER, ROGER E.	1971
HAWS, ROBERT W.	1947
HEGGEN, JAMES R.	1967
HEIN, EDWARD C.	1969
HENNIG, JAMES F.	1970
HILL, FREDERICK W.	1942
HILL, JAMES L.	1953
HILTON, ROSS C.	1970
HOLTROP, WILLIAM F.	1949
HOOTS JR, WILLIAM R.	1966
HOOVER, ROGER L.	1967
HUKILL, VIRON N.	1956
HUNT, DE WITT T.	1939
INGRAM, FRANKLIN C.	1965
INGRAM, MAURICE D.	1971
IRGANG, FRANK J.	1956
IRVINE, FLEET R.	1968
ISOM, VERNON H.	1970
JACKEY, DAVID F.	1933
JENKINS JR, JAMES	1955
JOHNSON, DELTON L.	1968
JOHNSON, FRANKLIN R.	1969
JOHNSON, WAYNE C.	1969
JORDAN, KENNETH F.	19
JORDAN, THOMAS F.	1942
KAHRMANN, ROBERT G.	1970
KAISER, HENRY	1968
KAVICH, LAWRENCE L.	1964
KAVIEFF, MELVIN C.	1961
KEIM, LAWRENCE	1966
KEITH, CHARLES W.	1964
KELLY, MICHAEL V.	1968
KENT, RONALD W.	1931
KETCHAM, GEORGE W.	1963
KICKLIGHTER, CLOIS F	1966
KIMBALL, KENNETH R.	1967
KINKER, H. ROBERT	1949
KLEINTJES, PAUL L.	1953
KOHLER, RICHARD C.	1951
KURTZ, HARMON H.	1959
LANGFORD, AL G.	1969
LARSON, DELMAR L.	1964
LARSON, MILTON E.	1955
LAUBENTHAL, CRAIG D.	1969
LEAN, ARTHUR E.	1948
LEAN, ARTHUR F.	1948
LEWIS, MYRON E.	1970
LIGHT, KENNETH H.	1967
LITTLE, RICHARD L.	1969
LJOSTAD, RODNEY A.	1965
LOGUE, JAY L.	1959
LOWMAN, CLARENCE L.	1967
LUDINGTON, JOHN R.	1940
MARRAH, JOHN A.	1970
MC DOWELL, LEONARD C	1964
MEHAIL, SPIRO	1971
MEISNER, ROBERT G.	1967
MELLINGER, BARRY L.	1972
MILLER, MARK E.	1967
MILLS, BOYD C.	1967
MOHEE, N. F.	1968
MONGERSON, MARTIN D.	1968
MOORE, LELAND B.	1970
MURBACH, NELSON J.	1949
NEALIS, MICHAEL F.	1951
NESTEL, GERALD E.	1970
NEWKIRK, LOUIS V.	1929
OLSON, DELMAR W.	1957
PAINE, HARRY W.	1943
PANKOWSKI, DALLAS J.	1966
PARDINI, LOUIS J.	1967
PASSMORE, JAMES L.	1963
PAULIN, HENRY S.	1964
PERDUE, SAUL M.	1954
PERKINS, LAWRENCE H.	1967
PHILLIPS JR, MILTON	1967
PHILLIPS, KENNETH	1950
PHILLIPS, LOREN D.	1954
QUIER, GEORGE T.	1969
RANDEL, STEPHEN V.	1957

REED, WILLIAM T.	1947
REIMER, MILTON K.	1968
REMICK, EDWARD L.	
RICE, CHARLES M. H.	1953
RICHARDS, MAURICE F.	1950
RICH, MILDRED K.	1958
RINCK, JOE A.	1968
RINEHART, RICHARD L.	1966
ROBBINS, EVELYN G.	1949
ROSSER, ARTHUR J.	1968
ROTHMAN, ROBERT A.	1969
ROWNTREE, URWIN	1951
RUDIGER, ELMER K.	1952
RUDISILL, ALVIN E.	1969
RUSSELL, ELLSWORTH M	1950
SALMON, DANIEL A.	1965
SANDERS, LEROY J.	1967
SCHMITT, MARSHALL L.	1953
SCOBEY, MARY-MARGARE	
SECHREST, CHARLES H.	1953
SEDGWICK, LURRY K.	1965
SEEHOFF, JESSE	1942
SEIGLER, CLAUDE I.	1970
SELLON, WILLIAM A.	1950
SEXTON, WILLIAM E.	1965
SHOEMAKER, CHARLES E	1961
SMALLEY, LEE H.	1962
SMITH, ROBERT F.	1928
SNITZ, RUBEN H.	1931
SPAULDING, ROLAND H.	1936
SPENCE, WILLIAM P.	1957
STAPLES, JAMES R.	1970
STEGEMAN, ARTHUR L.	1957
STEPHENS, GEORGE T.	1969
STERN, JACOB	1964
STEVENSON, JAMES E.	1953
STRANDBERG, C. E.	1963
STRONG, MERLE E.	1958
STUESSY, EUGENE L.	1969
TAGGART, LEO R.	1953
THORP, JOHN H.	1945
TIERNEY, WILLIAM F.	1952
VAN TASSEL, RAYMOND	1948
VANDEBERG, LOYD W.	1955
VANHERCK, DON V.	1966
VASEK, RICHARD J.	1967
WAGNER, EDGAR S.	1960
WAINA, RICHARD B.	1969
WAITKUS, LORIN V.	1971
WALLIS, CARL R.	1969
WALL, GUSTAVE S.	1951
WEBER, EARL M.	1961
WEST, WILLIAM E.	1969
WHITE, LELAND W.	1966
WIGEN, RAY A.	1957
WILSON, WADE	1954
WINTERS, KENNETH W.	1970
WOCKENFUSS, WILLIAM	1960
WOLANSKY, WILLIAM D.	1968
WOODEN, RALPH L.	1956
WRIGHT, LAWRENCE S.	1954

DEMO - DEMONSTRATION

AUTHOR	DATE
AMELON, DONALD J.	1969
BALL, CHIALES E.	1958
BENSON, M. J.	1967
CALEY, PAUL C.	1969
DUNFEE, EMERY S.	1964
JOHNSTON, JOHN L.	1956
JOLLY, FRANK H.	1970
LEMASTER, LELAN K.	1961
WORTHINGTON, ROBERT	1958
WRIGHT, WELCOME E.	1953

DESN - DESIGN

AUTHOR	DATE
ABITIA, FREDDIE	1971
ALDEN, RICHARD S.	1971
ATKINS, MICHAEL B.	1971
BAILEY JR, JAMES H.	1961
BARLOW, GARY C.	1967
BAUER, CARLTON E.	1955
BEKTON, WILLIAM E.	1965
COLCLASER JR, ROBERT	1968
DOELLINGER, KEITH E.	1971
HANKS, WILLIAM S.	1966
JOHNSON, ROBERT I.	1958
LENTO, ROBERT	1971
REED, RICHARD L.	1971
STORY, CHARLES H.	1970
STORY, CHARLES H.	1970
TUTHILL, RUSSELL	1970
WALSTON, HARRY W.	1970
WEHRLI, ROBERT	1968
WHITE, BRUCE H.	1967

DEYH - DEPRIVED YOUTH

AUTHOR	DATE
BEACHAM, HERBERT C.	19
BENJAMIN, GERALD E.	1968
BRITT, ROBERT D.	1966
CANDOLI, I. C.	1967
ELMER, FRANCES W.	1967
ENZIAN, HAROLD J.	1967
FINNEY JR, JOHN D.	1967
GILLILAND, HUGH R.	1967
JENSEN, THOMAS R.	1968
LOWMAN, CLARENCE L.	1967
MICHIE, JACK	1968
REED, WILLIAM T.	1947
RICH, MILDRED K.	1958
ROBINSON, WILLIAM O.	1971
SEEHOFF, JESSE	1942
STANTON, MILDRED B.	1938
TURECHEK, ARMIN G.	1967
WOODEN, RALPH L.	1956

DIED - DISTRIBUTIVE EDUCATION

AUTHOR	DATE
MONEY, HOMER E.	1956
RILEY, E. C.	19

DISC - DISCRIPTIVE GEOMETRY

AUTHOR	DATE
AMTHOR, WILLIAM D.	1967
BABCOCK, JAMES G.	1969
BECK, EUGENE J.	19
COZZENS, CHARLES R.	1965
EARLE, JAMES H.	1964

DO - DIVERSIFIED OCCUPATION

AUTHOR	DATE
BLEDSOE, HARRY J.	1968
DRAKE JR, FRANCIS O.	19
HAWLK, ROBERT H.	1960
HILL, CHARLES R.	1950
MEIERHENRY, WESLEY C	1946
MICHELSON, EINO S.	1956
PREITZ, CLARENCE H.	1969
SHIBLER, HERMAN L.	1941
SILVEY, WRAY D.	1950

DPOT - DROP-OUTS

AUTHOR	DATE
ATHANASIOU, ROBERT B	1969
BOWSER, JAMES A.	1960
CHRISTIAN, JACK B.	1969
CLARK, JAMES V.	1967
FALKENSTINE, JAMES C	1965
FRAZIER, WILLIAM D.	1966
GADBOIS, ROBERT L.	1968
GILBREATH, TOMMY D.	1971
HANSEN, MAX E.	1964
MARSHALL JR,THOMAS C	1941
MIDILI, JOHN A.	1970
MILLER, AARON J.	1966
MILLER, CLARENCE M.	1968
MUNISTERI, ANTHONY	1971
NEWBURY, DAVID N.	1967
RALSTROM, STIG E.	1969
SILVER, HARVEY A.	1967
STALLINGS, DANIEL N.	1969
STILLERMAN, MANUEL	1970
STROUT, GEORGE M.	1970
WHINFIELD, RICHARD W	1969
WHITE, LELAND W.	1966
WIEHE, THEODORE E.	1954

DRAF - DRAFTING/DRAWING

AUTHOR	DATE
ALEXANDER, WILLIAM F	1969
AMTHOR, WILLIAM C.	1967
ARMBRUST, ROBERT W.	1969
ATKINS, MICHAEL B.	1971
BAILEY JR, JAMES H.	1961
BARBER, CARL S.	1967
BARLOW, GARY C.	1967
BAUER, CARLTON E.	1955
BECK, BURREL H.	1967
BECK, EUGENE J.	19
BECK, JOHN R.	1964
BENJAMIN, NEAL B.	1969
BIEWALD, EDWARD C.	1969
BJORKQUIST, DAVID C.	1965
BLUM, ROBERT E.	1965
BOWMAN, ERNEST L.	1932
BROADHURST, FREDERIC	1969
BROWNRIGG, JERRY R.	1962
BURNS, WILLIAM E.	1965
CAMPBELL, GORDON	1969
COLCLASER JR, ROBERT	1968
CRAFT, CLYDE O.	1967
CRAWFORD, JOHN E.	1941
DOELLINGER, KEITH E.	1971
DYKE, EUGENE L.	1962
EARLE, JAMES H.	1964
ELLIS, NEIL G.	1966
ERICKSON, RICHARD C.	1966
FLEMING, BRUCE E.	1969
FORKNER, WILLIAM R.	1968
FRANCHAK, STEPHEN J.	1971
FRESCHET, FERUCCIO	1969
GLAZENER, EVERETT R.	1958
GROVES, EDWIN D.	1970
GUNDERSON, B. HARRY	1949
HARNEY, LEON T.	1967
HATLEY, JIMMY D.	1969
HEPLER, EARL R.	1957
HERBERTS, ROGER E.	1971
HICKMAN, KEITH F.	1967
HOLT, JAY F.	1970
HORINE, JOHN W.	1961
HUSUNG, WILLIAM T.	1970
JACOBSEN, ECKHART A.	1957
KESEMAN, CHARLES E.	1967
KLEHM, WALTER A.	1937
KRANTZ, MATTHEW B.	1970
LEMONS, CLIFTON D.	1965
LOGUE, JAY L.	1959
MAGOWAN, ROBERT E.	1967
MC CAGE, RONALD D.	1970
MIDDLETON, WILLIAM H	1962
MOEGENBURG, LOUIS A.	1969
MUGGETT, ALBERT G.	1958
MULLER, ERWIN T.	1939
MUNS III, NEDOM C.	1969
NOLL, ROBERT F.	1967
NORMAN, RALPH P.	1955
NYSTROM, DENNIS C.	1969
PAPP, ALEXANDER G.	19
RANDEL, STEPHEN V.	1957
RAY, J. EDGAR	1944
RICHARDS, MAURICE F.	1950
ROUTH, JERRY D.	1970
ROWLETT, JOHN D.	1966
RYAN, ROBERT D.	1964
SCHANBACHER, EUGENE	1961
SCHWEINFURTH, LUDWIG	1963
SEXTON, WILLIAM E.	1965
SMITH, DARRELL L.	1969
SMITH, FREDDY J.	1970
SMITH, KAY H.	1962
STANFIELD, FOSTER A.	1971
STEGMAN, GEORGE K.	1962
STORY, CHARLES H.	1970
STREICHLER, JERRY	1963
THATCHER, GLENN M.	1970
THATCHER, GLENN M.	1970
TORBETT, DANIEL L.	1965
VESPER, KARL H.	1969
VOLPE, GERALD	1969
WALKER, JOE W.	1970
WALLIS, CARL R.	1969
WALSTON, HARRY W.	1970
WEHRLI, ROBERT	1968
WILKES, DORAN F.	1966
WINEGAR, GARY H.	1969

DVED - DRIVER EDUCATION

AUTHOR	DATE
CRAWSHAW, MARSHALL R	1950
JANZEN, JOHN W.	1971
KAVICH, LAWRENCE L.	1964
LOCKE, LEWIS A.	
SONDERMAN, ROBERT B.	1956
WALLACE, NORMAN E.	1968

ELEL - ELECTRICITY

AUTHOR	DATE
ADAMS, ROBERT W.	1947
AUER, HERBERT J.	1971
BADER, LOIS	1932
BAKER, GLENN E.	1966
BAS, RADHA C.	1950
BERGMAN, KENNETH H.	1963
BRENNER, CHARLES J.	1968
BROE, JOHN R.	1962
BROWN III, ALPHA O.	1971
BROWN, ALPHA O.	1971
BROWN, GEORGE J.	1960
BRUDZYNSKI, ALFRED J	1966
DECK, WILLIAM L.	1955
DUKES, GLENN F.	1969
DUNFEE, EMERY S.	1964
FARR, WILBUR J.	1958
FOLEY JR, JOHN P.	1968
FOWLER, RICHARD J.	1965
FRANCIS, GEORGE H.	1966
FROELICH, DONALD M.	1970
GARNER, CAREY C.	1969
GERNE JR, TIMOTHY A.	1967
GILLIE SR, ANGELO C.	1967
GOLDBERG, JOEL	1971
HAMPTON JR, ISAAC P.	1959
HANCOX, FREDERICK J.	1969
HARMON, JAMES S.	1969
HERRING, TOD H.	1962
HILL, EDWIN K.	1968
HOBBS, ADDISON S.	1971
HOFER, JARREL	1969
INABA, LAWRENCE A.	1970
INGRAM, MAURICE D.	1971
JELDEN, DAVID L.	1971
JELDEN, DAVID L.	1960
JOHNSON, DOUGLAS H.	1969
JOHNSON, FRANK F.	1971
JOHNSTON, JOHN L.	1956
KAPLAN, HAROLD	1956
KAVANAUGH, WILLIAM A	1955
KLEIMAN, HERBERT S.	1966
KOUTNIK, PAUL G.	1968
LARSON, IRVING W.	1969
LEASE, ALFRED A.	1964
LEVENSON, WILLIAM B.	1937
LUNDY, LYNDALL L.	1968
LYONS, RICHARD A.	
MANESS, MARION T.	1969
MARCINOWSKI, MARY E.	1971
METZLER, JOHN H.	1970
MILLER, DAVID H.	1971
MILLS, BOYD C.	1967
MORGAN SR, LEO D.	1966
MUSGROVE, WILLIAM R.	19
NICKERSON, PAUL S.	1947
OHLSON, ELI E.	1943
PANKOWSKI, DALLAS J.	1966
PEARSON, WILLIAM W.	1967
PEITHMAN, ROSCOE E.	1955
PERKINS, LAWRENCE H.	1967
PITTMAN, FRANK M.	1970
PRATZNER, FRANK C.	1969
RAICHLE, HENRY F.	1969
RICKER, PHILLIP E.	1965
RUEHL, PHILIP W.	1961
RUITER, WILLIAM W.	1971
RUSSELL JR, JAMES A.	1967
SCHULER, CHARLES A.	1966
SEIGLER, CLAUDE I.	1970
SHIGETOMI, SAMSON S.	1970
SIMONS, JEROLD J.	1967
SLATER, JOHN B.	1970
SLATTER, JOHN B.	1970
SMITH, BRANDON B.	1968
SORENSEN, RONALD L.	1964
STIEGLER, LAIRD B.	1971
STILLERMAN, MANUEL	1970
TEEL, DEAN A.	1967
TREGO, JOHN W.	1958
TURNER, ROBERT E.	1957
VASEK, RICHARD J.	1967
VOGEL, RICHARD F.	1968
WASHBURN, KENNETH R.	1971
WEEDE, GARY D.	1967
WEFFENSTETTE, WALTER	1965
WILSON, RUSSELL C.	1971
WRIGHT, JERAULD B.	1969
YEAGER, LOWERY D.	1965

ELEM - ELEMENTARY SCHOOL

AUTHOR	DATE
BAUGRUD, KIM J.	19
BICKNELL, WILLIAM C.	1942
BJORKQUIST, DAVID C.	1965
BONDE, ROBERT G.	1964
BROWN, ROBERT D.	1955
BRUCE, PHILLIP L.	1964
BRUDZYNSKI, ALFRED J	1966
CHAMBERLAIN, DUANE G	1954
CHAMPION, GEORGE	1965
DOANE, RAYMOND C.	1956
DOUTT, RICHARD F.	1965
DOWNS, WILLIAM A.	1968
DUNCAN, GLENN S.	1950
GERNE JR, TIMOTHY A.	1967
GILBERT, HAROLD G.	1955
GOFF, WILLIAM H.	1967
GRIFFIN, RAYMOND V.	1965
GUNTHER, THERESA C.	1931
HANSEN, RUSSELL G.	1964
HAWS, ROBERT W.	1947
HERRICK, IRVING W.	1969
HORBAKE, R. LEE	1942
HORNBLAKE, R. LEE	1939
HURLEY, CARL E.	1971
INABA, LAWRENCE A.	1970
INGRAM, FRANKLIN C.	1966
JOHNSON, ROBERT I.	1958
KIRKWOOD, JAMES J.	1970
KOHLER, RICHARD C.	1951
KRUMBIEGEL, WALTER O	1955
LJOSTAD, RODNEY A.	1965
LLOYD, CLIFFORD J.	
LOATS, HENRY A.	1950
LOPEZ, DANIEL C.	19
LOW, FRED G.	1963
PAINE, OLIVE	1930
PALOW, WILLIAM P.	1969
PEEL, NANCY D.	1967
PERSHERN, FRANK R.	1967
POWER, ANDREW T.	1955
RICHARDS, KENVYN B.	1970
ROBINSON, FRANK E.	1955
SCOBEY, MARY-MARGARE	
SQUIBB, ALBERT R.	1967
SWERDLOW, ROBERT M.	1969
THIEME, EBERHARD	1965
TRAPANESE, MENNA G.	1964
VANHERCK, DON V.	1966
WILLIAMS III, WALTER	1963

ENGR - ENGINEERING

AUTHOR	DATE
AKHUN, ILHAN I.	1961
ATHANASIOU, ROBERT B	1969
BOONE, JAMES L.	1966
BRACEY, HYLER J.	1969
BRADSHAW, OTTIE L.	1968
BROTHERTON, WILLIAM	1964
CLAUSEN, JOHN N.	1955
COLCLASER JR, ROBERT	1968
DAVID, WILLIAM J.	1968
DEAN, C. THOMAS	1951
DUNLAP, EUGENE W.	1962
DYKE, EUGENE L.	1962
ELLIOTT, EARL S.	1967
FOSTER, ROBERT J.	1969
GARNER, CAREY C.	1969
GROSS, ANDREW C.	1968
GROVES, EDWIN D.	1970
HANSEN, MAX E.	1964
HEPLER, EARL R.	1957
HOLT, JAY F.	1970
HUNTER, ROBERT F.	1970
HUNT, DE WITT T.	1939
JOHNSTON, WALLACE L.	1968
KANTER, STUART A.	1968
KRUBECK, FLOYD E.	1954
LAUBENTHAL, CRAIG D.	1969
LEMONS, CLIFTON D.	1965
LOGUE, JAY L.	1959
MANGANELLI, FRED D.	1959
MILLER, AARON J.	1966
MUDGETT, ALBERT G.	1958
RANDEL, STEPHEN V.	1957
RAY, REX E.	1966
RICHARDS, MAURICE F.	1950
RINEHART, RICHARD L.	1966
ROTHMAN, ROBERT A.	1969
RUTEN, WILLIAM H.	1953
RYAN, ROBERT D.	1964
SCHWEINFURTH, LUDWIG	1969
STAMM, HAROLD S.	1968
STEGMAN, GEORGE K.	1962
STORY, CHARLES H.	1970
STORY, CHARLES H.	1970
TRAMBLEY, JOHN B.	1969
VAN DERSLICE, JOHN F	1967
VESPER, KARL H.	1969
WAINA, RICHARD B.	1969
WATERSTREET, DONALD	1969
WIEHE, THEODORE E.	1954

ENVT - ENVIRONMENTAL CONCERN

AUTHOR	DATE
CANGOLI, I. C.	1967
CAULEY, MICHAEL J.	
DOLAN, ROBERT E.	1971
SUMTER, PAUL E.	1969
YUNG, JOHN E.	1965

EQIP - EQUIPMENT

AUTHOR	DATE
BUNTEN, CHARLES A.	1955
DOUTT, RICHARD F.	1965
ENVICK, DONALD D.	1968
ERICKSON, JOHN H.	1953
HUMBLE, MILFORD K.	1937
KLEHM, WALTER A.	1937
MC ARTHUR, ROSS J.	1955
MC GAW, SIDNEY E.	1952
MILLER, JOHN G.	1954
MILLER, THOMAS W.	1958
ROSS, RAYMOND J.	1966
WAGNER, EDGAR S.	1960
WINEGAR, GARY H.	1969

ETHN - ETHNIC GROUPS

AUTHOR	DATE
ALLEN, WILSON S.	1936
BEACHAM, HERBERT C.	19
CHAVOUS, ARTHUR M.	1945
COTTON, GEORGE R.	1944
CURTIS, BYRON W.	1968
ENCK, HENRY S.	1970
FINNEY JR, JOHN D.	1967
GILLILAND, HUGH R.	1967
HAIGWOOD, THOMAS L.	1959
HALL, CLYDE W.	1953
HARRISON, ELTON C.	1948
HILLSMAN, SALLY	1970
JACKSON, THOMAS A.	1962
MILLER, WAYNE E.	1969
PHILLIPS, AUGUSTUS C	1941
PRITCHARD, MIRIAM C.	1937
REED, WILLIAM T.	1947
STUART, IRVING R.	1951
TAYLOR, CYRUS B.	1955
TURNER, ALFRED B.	1941
TURNER, BRIDGES A.	1941
WOODEN, RALPH L.	1956

EVFA - EVALUATION - FACULTY

AUTHOR	DATE
ANDREYKA, ROBERT E.	1969
ARNOLD, DANIEL S.	1968
BURKERT, WILLIAM G.	1970
CAIN, JOHN N.	1970
CLABAUGH, RICHARD D.	1971
EHRENBORG, JOHN D.	1963
ENSMAN, LEO M.	1957
FORREST JR, LEWIS C.	1970
FRAGALE, MARVIN J.	1969
GIANINI, PAUL C.	1968
GUNDERSON, ORLEY D.	1971
HAGEN, DONALD L.	1972
HAMMACK, CHARLES R.	1967
HOLMEN, HOLGER E.	19
LARSON, MILTON E.	1965
LINDAHL, DONALD G.	1971
LOEPP, FRANZIE L.	1970
MC KEE, RONALD R.	1971
MC LONEY WIRT L.	1965
MEYER, JOHN D.	1970
MILLER, JACK D.	1971
NEASHAM, ERNEST R.	1968
OLIVER, WILMOT F.	1967
OPPELT, MARION O.	1967
RUDISILL, ALVIN E.	1969
STANGL, OTTO A.	1968
STEPHENSON, LESLIE E	1958
SUTTON, FRED C.	1961
TOLLEY, CHARLES H.	1969
WALLS, W. DALE	1964
WATKINS, KENNETH E.	1966
WILLIAMS III, WALTER	1963
WITT, HENERY F.	1971
WOODY JR, EARL T.	1963

EVPN - EVALUATION - PERSONNEL

AUTHOR	DATE
ANDREYKA, ROBERT E.	1969
ARMSTRONG, KENNETH E	1971
BALL, JOHN E.	1971
BATES, IVAN W.	1971
BLAKELEY, THOMAS A.	1949
BOWDOIN, PAUL	1966
BRANDON, GEORGE L.	1952
BRENCKLE, AUTHUR G.	1968
BRINKMAN, FRED J.	1970
BROE, JOHN R.	1962
BUTTERY, WILLIAM A.	1971
CAMBRIA, SOPHIA T.	1945
CLENDENNING, LEE R.	1972
COLGAN, FRANCIS E.	1967
COMBS, STANLEY L.	1948
CONNER, JOHN D.	1971
COOMER, JERRY W.	1971
CRUMP, DANNY L.	1968
CUMMINGS, LAWRENCE J	1969
DEADY, JOHN J.	1970
DOELLINGER, KEITH E.	1971
DUGGER, WILLIAM E.	1970
ELLIOTT, BURTON L.	1971
ELMGREN JR, G. THEOD	1963
ENVICK, ROBERT M.	1970
FACE, WESLEY L.	1963
FEGAN, HAROLD J.	1971
FRANCHAK, STEPHEN J.	1971
GISRIEL, AUSTIN E.	1959
GUNDERSON, ORLEY D.	1971
HAMMOND, HOWARD R.	1971
HANSON, ROBERT R.	1970
HARRIS, ROBERT C.	1970
HEILMAN, CASMER F.	1970
HENAK, RICHARD M.	1971
HERRING, TOD H.	1962
HILL, RICHARD E.	1970
HOERNER, HARRY J.	1969
HOUSE, ELAINE	1970
IVES, QUAY D.	1971
JOHNSON, VERNER B.	1966
JONES, GUY R.	1971
KAISER, RONALD E.	1971
KARNES, JOHN W.	1951
KOHRAM, GEORGE E.	1952
KREPEL, WAYNE J.	1967
KRUPPA, RICHARD A.	1970
KYNARD, ALFRED T.	1960
LAMBERT, JAMES H.	1940
LANDIS, RUSSELL H.	1940
LANMAN, RICHARD W.	1953
LAPIDUS, GEORGE	1954
LARSON, RAYMOND H.	1951
LE BLANC, DARRELL R.	1971
LEAN, ARTHUR E.	1948
LEAVITT, WILLIAM C.	1969
LIEN, DAVID A.	1971
LINTON, JOHN A.	1951
LOEPP, FRANZIE L.	1970
LONG, GILBERT A.	1970
LOW, FRED G.	1963
LYBARGER, ALVIN E.	
MAC DONALD, MANLEY F	1944
MC CABE, FRED J.	1970
MC ROBBIE, J. M.	1963
MEHALLIS, GEORGE	1963
MECSKY, PAUL R.	1967
MESSERSCHMIDT, DALE	1967
MEYER, JOHN D.	1970
MILLER, DAVID H.	1971
MONROE, ALLEN L.	1970
MOODY, RICHARD D.	1968
MOORE, LELAND B.	1970
MOULLETTE, JOHN B.	1970
MUND, RICHARD G.	1970
NELSON, HILDING E.	1962
NICHOLS JR, GEORGE V	1971
NORTON, ELIZABETH N.	1970
OAKS, MERRILL M.	1970
OMAN, RONALD N.	1971
PETER, RICHARD F.	1970
POLK, HAROLD J.	1969
RAU, GERALD N.	1971
REBHORN, ELDON A.	1972
ROBERTS, EDWARD R.	1971
SHIGETOMI, SAMSON S.	1970
SIMPSON, JAMES L.	1970
STAMM, HAROLD S.	1968
STANFIELD, FOSTER A.	1971
STANGL, OTTO A.	1968
STENSON, ORVIS J.	1971
STEPHENSON, LESLIE F	1958
STUTEVILLE, CLAUDE E	1971
TATE, HAROLD S.	1951
ULLERY, JESSE W.	1971
VAN DERSLICE, JOHN F	1967
VAN GIGCH, JOHN P.	1968
VOLK, VINCENT A.	1955
WALDORF, ROBERT J.	1971
WITT, NORMAN E.	1969
WOOD, GRANT R.	1970
WRIGLEY, MARGARET	1968

EVPR - EVALUATION - PROGRAM

AUTHOR	DATE
ABRAHAM SR, ANSLEY A	1956
ABRAMSON, BERNARD	1950
ADAMS, DEWEY A.	1966
ALDEN, RICHARD S.	1971
ALSIP JR, BENJAMIN H	1965
ANDREWS JR, JOE R.	1968
ANDREWS, EARL R.	1966
ARNOLD, FRANK J.	1932
ASHLEY, LAWRENCE F.	1936
ATKINS, MICHAEL B.	1971
BAILEY, MILTON J.	1969
BAKER, GEORGE L.	1970
BAKER, GLENN E.	1966
BALDWIN, THOMAS R.	1971
BARON, ANDREW W.	1968
BARROWS, FRANK B.	1970
BARROW, RICHARD W.	1969
BEACH, CHARLES K.	1941
BEACH, ROBERT B.	1967
BECK, BURREL H.	1967
BELL, CHARLES L.	1954
BERGVIN, PAUL E.	1945
BISHOP, JAMES R.	1970
BLECKMAN, JUDITH C.	1971
BLOCK, MURRAY H.	1953
BOAZ, HOLLAND E.	1965
BOHN, RALPH C.	1957
BONDE, ROBERT G.	1964
BORUM, JOHN F.	1969
BOSS, RICHARD D.	1968
BOTTOMS, JAMES E.	1965
BOYER, CAROLINE K.	1966
BOYER, JOHN W.	1970
BRANTNER, SEYMOUR T.	1962
BRENHOLTZ, GERALD S.	1967
BRENHOLTZ, HAROLD R.	1957
BRIGHAM, ELDEN L.	1950
BROE, JOHN R.	1962
BRO, RONALD D.	1971
BRUCE, PHILLIP L.	1964
BRUSH JR, GEORGE W.	1969
BURDETTE JR, WALTER	1955
BURKERT, WILLIAM G.	1970
BURROUGHS, MARVIN G.	1970
CAGE, BOBBY N.	1968
CAIN, CECIL R.	1953
CALLEN, LOUIS J.	1952
CAMPION, HOWARD A.	1941

CARLSEN, DARVEY E.	1961
CARR, EVA R.	1970
CARR, HAROLD L.	1970
CHAROONCHAI, RUANG	1963
CHATFIELD, WILLIAM D	1955
CHRISMAN, JOSEPH P.	1970
CLAUSEN, JOHN N.	1955
CLEVELAND, JOHN M.	1961
COCHRAN, LESLIE H.	1968
COLEMAN, JAY M.	1971
COLEMAN, WAYNE D.	1967
COLLINS, CHARLES J.	1968
COLLINS, HERMAN G.	1966
COLLINS, SAMUEL R.	1962
COOPER, JACK H.	1961
CORAZZINI, ARTHUR J.	1967
COTTON, GEORGE R.	1944
COX, ROBERT L.	1970
COZZENS, CHARLES R.	1965
CRAWFORD, JOHN E.	1941
CROMER, CHALMERS A.	1970
CROUCH, J. PAGE	1968
CRUMPTON, CHARLES R.	1952
CRUMP, DANNY L.	1968
CUCNY, EDWARD R.	1953
DANAHER, EUGENE I.	1946
DANIELS, BLAIR E.	1937
DANNENBERG, RAYMOND	1965
DANOVITZ, SAUL	1957
DAVENPORT, JOE O.	1959
DAVIDSON, JOHN E.	1968
DAVIS, WARREN C.	1936
DE VORE, PAUL W.	1961
DENNISON, BOBBY	1970
DENNIS, ERVIN A.	1966
DEVLIN, LEON G.	1971
DIEDRICK, WALTER E.	1971
DILIBERTO, MENNO	1968
DOANE, RAYMOND C.	1956
DOBSON, CLIFFORD G.	1956
DOLAN, ROBERT E.	1971
DOTY, CHARLES R.	1968
DOWNS, WILLIAM A.	1968
DRAKE JR, FRANCIS O.	19
DUNCAN, GLENN S.	1950
DUNLAP, EUGENE W.	1962
EARLE, JAMES H.	1964
ECKER, LOUIS G.	1965
EDDY, EVAN M.	1956
EDMUNDS, NIEL A.	1969
EGGERS, JERRY R.	1970
EICHER, ROBERT S.	1968
EISENBERG, WILLIAM L	1947
ELDER, WALTER T.	1941
ENGELBART, LEON P.	1970
ENVICK, DONALD D.	1968
ENZIAN, HAROLD J.	1967
EPHRAIM, JOHN	1969
ERWIN, CLIFFORD H.	1963
ERWIN, WILLIAM R.	1963
ESTABROOKE, EDWARD C	1939
EVANS, WILSON A.	1954
FAGAN, BERNARD T.	1970
FAHS, ELDON E.	1967
FALES, ROY G.	1948
FALLS, JOHN E.	1968
FARAHBAKHSHIAN, EBRA	1967
FARMER, JOE H.	1950
FISHER, RICHARD E.	1956
FORBES, ROY H.	1970
FORKNER, WILLIAM R.	1968
FOSTER, ROBERT J.	1969
FRANK JR, HARRY E.	1968
FRANKSON, CARL E.	1948
FRANTZ JR, NEVIN R.	1967
FRAZIER, WILLIAM D.	1966
FROELICH, DONALD M.	1970
FUGAL, GLEN R.	1950
FUGLSBY, GLEN O.	1965
GAILEY, DAVID S.	1969
GALLINGTON, RALPH O.	1947
GAVIN, GORDON O.	1968
GIBSON, CHARLES H.	1968
GIFFORD, KENNETH K.	1970
GILBREATH, TOMMY D.	1971
GILLIE SR, ANGELO C.	1967
GILMAN, ROBERT A.	1969
GINTHER, RICHARD E.	1964
GLAU, JON E.	1970
GOISHI, FRANK H.	1970
GRAMBERG, MERLYN L.	1971
GRANNIS, GARY E.	1970
GRAY, KENNEY E.	1970
GRELL, DARRELL D.	1967
GRIFFIN, RAYMOND V.	1965
GRONEMAN, CHRIS	1950
GROVER, JERRY D.	1968
GUNDERSON, B. HARRY	1949
HACKETT, DONALD F.	1953
HAIGWOOD, THOMAS L.	1959
HALL, CLARENCE E.	1969
HALL, JAMES F.	1954
HANKAMMER, OTTO A.	1935
HANSEN, PHILLIP W.	1970
HANSEN, RUSSELL G.	1964
HANSON, DURWIN M.	1956
HARPER, HERBERT D.	1934
HARRISON, ELTON C.	1948
HARRIS, JAMES G.	1970
HARRIS, JAMES N.	1969
HARRIS, RICHARD	1970
HARRIS, SUE A.	1970
HAUER, NELSON A.	1949
HAUSER, ROGER E.	1971
HAWKINS, LESLIE V.	1953
HAWSE, JOHN E.	1964
HEATH, JAMES L.	1967
HELTON, H. L.	1958
HENDRIX, SAMUEL D.	1942
HENDRIX, WILLIAM F.	1967
HEPLER, EARL R.	1957
HILL, CHARLES R.	1950
HILL, FREDERICK W.	1942
HILL, JAMES L.	1953
HILTON, ROSS C.	1970
HOBBS, ADDISON S.	1971
HOCH, EMIL H.	1969
HODGSON, PAUL M.	1965
HOLLOWAY, LEWIS D.	1967
HOLTROP, WILLIAM F.	1948
HOMISAK, WILLIAM	1970
HOOTS JR, WILLIAM R.	1966
HOOVER, ROGER L.	1967
HOPPER, CHARLES H.	1971
HORBAKE, R. LEE	1942
HORNBLAKE, R. LEE	1939
HOSTETLER, IVAN	1945
HOUSKA, JOSEPH T.	1971
HOWE, TREVOR G.	1963
HULL, THOMAS F.	1964
HUNTINGTON, HAROLD A	1940
HUNT, DE WITT T.	1939
HUSS, WILLIAM E.	1951
HUTCHERSON, ETHEL M.	1966
HUXOL, ROBERT L.	1954
HYDER, CARROLL R.	1971
INGRAM, FRANKLIN C.	1965
ISOM, VERNON H.	1970
JACKEY, DAVID F.	1933
JACOBSEN, JAMES H.	1964
JAMES, CALVIN E.	1963
JENKINS JR, JAMES	1955
JENSEN JR, ROBERT D.	1969
JENSEN, THOMAS R.	1968
JOHNSON, MARVIN E.	1959
JOHNSON, RAYMOND C.	1971
JONES, CHARLES I.	1967
JORDAN, THOMAS F.	1942
JUDD, WILLIAM P.	1971
JULIAN, LESTER J.	1953
KABAKJIAN, EDWARD	1969
KAGY, FREDERICK D.	1959
KEIM, WILLIAM E.	1966
KEITH, CHARLES W.	1964
KEPLER, ATLEE C.	1968
KERWOOD, ROBERT V.	1967

KETCHAM, GEORGE W.	1963
KIMBALL, KENNETH R.	1967
KJOS, OSCAR F.	1954
KLABENES, ROBERT E.	1971
KLEINBACH, MERLIN H.	1959
KLEINTJES, PAUL L.	1953
KOHLER, RODERICK G.	1952
KOONCE, TOMMY R.	1968
KOO, PO-YEN	1968
KRUMBIEGEL, WALTER C	1955
KURTZ, HARMON H.	1959
LAND, MING H.	1970
LANGDON, CHARLES W.	1967
LANGFORD, AL G.	1969
LANG, EDWARD H.	1942
LARSON, MILTON E.	1965
LAUBENTHAL, CRAIG D.	1969
LEMONS, CLIFTON D.	1965
LIGHT, KENNETH F.	1967
LINDAU, ORA F.	1968
LLOYD, CLIFFORD J.	
LOATS, HENRY A.	1950
LOCKETTE, RUTHERFORD	1956
LOGUE, JAY L.	1959
LOPEZ, DANIEL C.	19
MALEY, DONALD	1949
MANSFIELD, ROBERT T.	1959
MARBURGER, EDWARD F.	1948
MARCH, BRYCE D.	1961
MARTIN, WILLIAM E.	1970
MASON, EMMETT E.	1969
MASON, WILLIAM H.	1970
MASSEY, HAL	1965
MC CLEARY, JOSEPH L.	1967
MC ELHENY, JOHN R.	1960
MC INNIS, DONALD W.	1971
MC KECHNIE, GRAEME H	1966
MC LONEY WIRT L.	1965
MC NEILL, JOSEPH G.	1970
MEHAIL, SPIRO	1971
MEHALLIS, GEORGE	1963
MEIER, MARY A.	1969
MEISNER, ROBERT G.	1967
MELLINGER, BARRY L.	1972
METZLER, JOHN H.	1970
MEYERS, ALBERT	1967
MICHELSON, EINO S.	1956
MILAM, THOMAS R.	1968
MILLER, JACK D.	1971
MILLER, JAMES A.	1971
MILLER, LARRY R.	1971
MILLER, MURRAY L.	1947
MILLS, EARL S.	1971
MITCHELL, JOHN	1954
MONTELLO, PAUL A.	1968
MORELAND JR, HENRY C	1970
MORGAN, DARYLE W.	19
NAIR, RALPH K.	1950
NEALIS, MICHAEL F.	1951
NEWBURY, DAVID N.	1967
NEWKIRK, LOUIS V.	1929
NIELSEN, ERWIN E.	1969
O DELL, ROBERT D.	1963
OAKLEY, HUGH L.	1954
OHLSON, ELI E.	1943
OLIVO, C. THOMAS	1954
OLSEN, FRED A.	1962
OTTERSON, PEDER A.	1969
OXLEY, VINCENT E.	1969
PANKOWSKI, DALLAS J.	1966
PATTERSON JR, PHILIP	1968
PAWELEK, STANLEY J.	1941
PENDERED, NORMAN C.	1951
PERSHING, REX W.	1970
PETERS, DONALD F.	1959
PETER, RICHARD F.	1970
PHALLEN, CHARLES W.	1958
PHARES, GAIL J.	1962
PHILLIPS JR, MILTON	1967
POLESZAK, LEONARD J.	19
POLOMSKY, JOHN V.	1969
PORTER, SAM R.	1962
PRATT, ARDEN L.	1963
PRATZNER, FRANK C.	1969
PRICE, DENNIS H.	1955
PROCTOR, BERNARD S.	1950
QUIER, GEORGE T.	1969
RANDEL, STEPHEN V.	1957
REED, HOWARD O.	1948
REESE, ROBERT M.	1954
RICHARDS, JOHN V.	1970
RIDLEY JR, WILLIAM H	1970
RILEY, F. C.	19
RIMLER, GEORGE W.	1969
RINEHART, RICHARD L.	1966
ROBINSON, WILLIAM J.	1971
RONODIDIJOJO, SUEWAN	1968
ROSS, HERBERT J.	1970
ROTHMAN, ROBERT A.	1959
RUBIN, MORRIS M.	1950
RUDISILL, ALVIN E.	1969
RUNNALLS, JAMES J.	1965
RUSSELL, LESTER F.	1968
SARGENT, WILLIAM T.	1956
SCHANK, KENNETH L.	1965
SCHMIDT JR, FRED J.	1941
SCHWEINFURTH, LUDWIG	1969
SEIDEL, JOHN J.	1951
SELLON, WILLIAM A.	1950
SELMAN, JAMES W.	1967
SEXTON, WILLIAM E.	1965
SHAFER, CARL I.	1961
SHEFFIECK JR, CHARLE	1969
SHEPPARD, LAWRENCE E	1967
SHERMAN, DOUGLAS R.	1956
SHIBLES, FOSTER M.	1971
SHOEMAKER, BYRL R.	1957
SHULL, HOWARD I.	1969
SILVER, HARVEY A.	1967
SIMONS, JEROLD J.	1967
SINGLETARY, THOMAS A	1968
SMITH, FARMER S.	1969
SNYDER, VANCE B.	1960
SOMMERFELD, DONALD A	1969
SONDERMAN, ROBERT B.	1956
SONNY, JACOB	1971
SPEER, HUGH W.	1950
SPENCER, ALBERT G.	
SQUIBB, ALBERT R.	1967
STANGER, NORMAN R.	1967
STANGL, OTTO A.	1963
STANTON, WILLIAM A.	1967
STENSON, ORVIS J.	1971
STEPHENSON, LESLIE E	1958
STERN, JACOB	1964
STONER, WILLIAM D.	1940
STORMER, DONALD L.	1967
STOUGHTON, ROBERT W.	1955
STRICKLAND, THOMAS W	1959
STUART, CHIPMAN G.	1968
STUART, HARLAND	1933
STUESSY, EUGENE L.	1969
SULLIVAN, JAMES A.	1967
SWAENGSUGDI, THANOO	1959
TAGGART, LEO R.	1953
TALKINGTON, JOE E.	1962
TAYLOR, CYRUS B.	1955
THATCHER, GLENN M.	1970
THROWER, ROBERT G.	1961
TILLEY, TRUMAN E.	1945
TOWERS, EDWARD R.	1956

TREGILGUS. EARL P.	1954
TRICHE JR. ANDREW	1933
TURNER. ALFRED B.	1941
TUTTLE. CHESTER D.	1965
UNDERHILL, CHARLES M	1968
USDANE. WILLIAM M.	1955
VALENTINE. IVAN E.	1969
VANCIVER, ROBERT E.	1968
VERMEULEN, ROBERT	1968
VINEYARD, BENNY S.	1962
VOELKNER, ALVIN R.	1970
WAHTERA, KAUKO A.	1965
WAKITA. OSAMU A.	1970
WALLACE, NORMAN E.	1968
WALLIS. CARL R.	1969
WALLIS. DONALD E.	1965
WALLS. W. DALE	1964
WALL. GUSTAVE S.	1951
WARRICK. GLENN D.	19
WASDEN. JED W.	1968
WASHBURN. CLYDE I.	1969
WEAGRAFF, PATRICK J.	1971
WEBSTER, JAY L.	1970
WEIR. ELDON L.	1970
WELSH. DONALD J.	
WENIG. ROBERT E.	1970
WENTZ. CHARLES H.	1969
WHITESEL, JOHN A.	1940
WHITE. STROLLER T.	1967
WIEHE. THEODORE F.	1954
WIGGS. GARLAND D.	1971
WILBER. GEORGE O.	1941
WILCOX, T. GLADE	1957
WILLIAMSON, MERRILL	1958
WILLIAMS, WILLIAM A.	1959
WILSON. MICHAEL C.	1969
WILSON. RUSSELL C.	1971
WINTERS, KENNETH W.	1970
WOFFORD. THOMAS B.	1963
WOMMACK, CHARLES H.	1967
WOODRUFF, JAMES N.	1971
WORTHINGTON. ROBERT	1958
WRIGHT. JERAULD B.	1969
WRIGHT. WELCOME E.	1953
YOUNG. DARIUS R.	1968
ZANE. LAWRENCE F.	1968

EVST - EVALUATION - STUDENT

AUTHOR	DATE
BECKER. DEROLD W.	1969
BYROM. JOHN M.	1957
CLAWSON, LA VERE E.	1967
COMSTOCK, THOMAS W.	1969
CRAWFORD. JOHN E.	1941
DENSLEY, KENNETH G.	1967
FOLEY JR, JOHN P.	1968
FRAGALE, MARVIN J.	1969
FUZAK. JOHN A.	1948
GARNER, CAREY C.	1969
GIFFORD, KENNETH K.	1970
GISRIEL, AUSTIN E.	1959
GRANEY. MAURICE R.	1942
HALE. LESTER W.	1967
HAMMER. GARLAND G.	1951
HANKIN. EDWARD K.	1947
HANSBURG, HENRY	1935
HANSON. DURWIN M.	1956
HARLAN. OWEN	1953
HARRIS. ROBERT C.	1970
HAWKINS, LESLIE V.	1953
HAWLK, ROBERT H.	1960
HEGGEN. JAMES R.	1967
HENNIG, JAMES F.	1970
HERRICK, IRVING W.	1969
HILTON. ROSS C.	1970
HISER. PAUL T.	1958
HULLMAN. DON H.	1971
IRVINE. FLEET R.	1968
JARVIS. JOHN A.	1953
JENKINS. FARRELL T.	1969
JENSEN JR. ROBERT D.	1969

JOHNSON. DONALD H.	1966
KESEMAN, CHARLES E.	1967
KRUBECK, FLOYD E.	1954
LATHROP, ROBERT C.	1969
LEMONS. CLIFTON D.	1965
LINNICK, IDA	1949
LOWENSTEIN, NORMAN	1955
LOWMAN. CLARENCE L.	1967
LUTZ. RONALD J.	1969
LYONS. RICHARD A.	
MC CALLUM, HARRY N.	1967
MC EOWEN, ROBERT H.	1967
MC KECHNIE. GRAEME H	1966
MORRISON, JESSIE S.	1969
MUDGETT. ALBERT G.	1958
MULLER. ERWIN T.	1938
NELSON, HOWARD F.	1953
NEUFELD, JACOB A.	1968
PASSMORE, JAMES L.	1969
PEERSON. RICHARD H.	1969
PHILLIPS, DONALD S.	1968
PRITCHARD. MIRIAM C.	1937
PUGH. DWIGHT A.	1969
REISENGER, RAYMOND H	1970
ROLLINGS, JAMES W.	1967
SALTEN. DAVID G.	1944
SANDERSON, HERBERT	1948
SELLON, WILLIAM A.	1950
SHEMICK. JOHN M.	1960
SHIH. WEI-TUN	1969
SILVEY. WRAY D.	1950
SMITH. BRANDON B.	1968
SMITH. ROBERT E.	1925
STANTON, MILDRED B.	1938
STOUGHTON, ROBERT W.	1955
SULLIVAN, THOMAS W.	1967
THORPE. CLAIBURNE B.	1968
TORRES. LEONARD	1963
TUCKER, CASEY A.	1965
VON STROH, GORDON E.	1968
WHINEFIELD, RICHARD W	1969
WILMOTT, JOHN N.	1941
WINDLE. JIM L.	1968
WYNNE. ROBERT L.	1968
ZIMMER. THEODORE A.	1969

EXCD - EXCEPTIONAL CHILDREN

AUTHOR	DATE
BAUGRUD, KIM J.	19
BENJAMIN, GERALD E.	1968
BLACK. DONALD E.	1970
BURRIS. WAITUS R.	1967
CLARK, JAMES V.	1967
DAVIS. EDDIE M.	1971
DOANE. RAYMOND C.	1956
DRENNAN. JERRY D.	1970
DRENNAN, JERRY D.	1970
ELMER. FRANCES W.	1967
FINDLEY, WILLIAM L.	1967
FRAZIER, WILLIAM D.	1966
GLISMANN, LEONARD W.	1967
GROVES, RAMSEY M.	1966
HAGEN. DONALD L.	1972
HALLAHAN, MICHAEL F.	1969
HOLLINSHEAD, MERRILL	1952
JACKMAN, DUANE A.	1961
JAGEMAN. LARRY W.	1968
JENSEN. THOMAS R.	1968
MOORE. ALFRED H.	1954
NILSON. KENNETH	1931
OAKS, MERRILL M.	1970
OLSON, DAVID O.	19
PRITCHARD, MIRIAM C.	1937
RICH, MILDRED K.	1958
ROSS. HERBERT J.	1970
SEEHOFF, JESSE	1942
TURECHEK, ARMIN G.	1967
WENTZ. CHARLES H.	1969
WILBUR. LOUISE	1931
WILLIAMS, MICHAEL	1970
WOLLINGTON, JAMES M.	1966

EXCR - EXTRA CURRICULAR

AUTHOR	DATE
JACKSON, PETER A.	1965
KIMBALL, KENNETH R.	1967
MAYS, WILLIAM A.	1954

EXPR - EXPERIMENTAL STUDIES

AUTHOR	DATE
ABITIA, FREDDIE	1971
ALEXANDER, WILLIAM F	1969
ALSUP, REA T.	1967
AMTHOR, WILLIAM D.	1967
ARMSTRONG, WILLIAM H	1967
ARVEY, RICHARD D.	1970
AUER, HERBERT J.	1971
BABCOCK, JAMES G.	1969
BARLOW, GARY C.	1967
BECKHAM, JOE W.	1969
BECK, EUGENE J.	19
BERGMAN, KENNETH H.	1963
BERTRAND, CLINT A.	1964
BIEKERT, RUSSELL G.	1971
BIEWALD, EDWARD C.	1969
BJORKQUIST, DAVID C.	1965
BJORNERUD, JAMES A.	1970
BLANKENBAKER, EDWIN	1970
BLANKENBAKER, F. K.	1970
BLOMGREN, ROGER C.	1962
BRENNER, CHARLES J.	1968
BROOKS, WESTON T.	1964
BURSE SR, LUTHER	1969
CALEY, PAUL C.	1969
CAMPBELL, GORDON	1969
CAMPION, HOWARD A.	1941
CAMPION, HOWARD A.	1941
CARLSON, HENRY L.	1967
CARLSON, HENRY L.	1967
CLARK, DONALD L.	1967
COCHRAN, GEORGE C.	1967
COCMER, JERRY W.	1971
COOVER, SHRIVER L.	1941
CORNWELL, RAYMOND L.	1961
CRAFT, CLYDE O.	1967
CREMER, KENNETH D.	1970
CROWDER, GENE A.	1968
DE OLD, ALAN R.	1971
DENNIS, ERVIN A.	1966
DOUGHERTY, DORA J.	1955
DUGGER, WILLIAM E.	1970
EARLE, JAMES H.	1964
ELLIS, NEIL G.	1966
ENTORF, JOHN F.	1967
FACE, WESLEY L.	1963
FAZZINI, PHILLIP A.	1970
FOWLER, EWELL W.	1949
FOWLER, RICHARD J.	1965
FRANCHAK, STEPHEN J.	1971
FRANCIS, GEORGE H.	1966
GALLINELLI, JOHN W.	1970
GERNE JR, TIMOTHY A.	1967
GETTLE, KARL E.	1970
GIERKE, EARL W.	1970
GLAZENER, EVERETT R.	1958
GOFF, WILLIAM H.	1967
GRIFFITH, JOHN L.	1967
HAHN, MARSHALL S.	1967
HAILES, CHARLES W.	1971
HANKIN, EDWARD K.	1947
HARDING, LARRY G.	1971
HASKELL, ROGER W.	1969
HEARN, ARTHUR R.	1948
HENAK, RICHARD M.	1971
HEPLER, EARL R.	1957
HERBERTS, ROGER E.	1971
HESS, HARRY L.	1969
HEYEL, CLARENCE L.	1967
HINCKLYE, EDWIN C.	1963
HOCH, EMIL H.	1969
HOFER, ARMAND G.	1963
HOLT, JAY F.	1970
HORBAKE, R. LEE	1942
HOUSEHOLDER, DANIEL	1963
HOUSKA, JOSEPH T.	1971
HULL, THOMAS F.	1964
HURLEY, CARL E.	1971
ILOTT, JOHN F. D.	19
JACOBSEN, ECKHART A.	1957
JARED, ALVA H.	1968
JENKINS, JOHN D.	1969
JOHNSON, FRANK F.	1971
JOHNSTON, JOHN L.	1956
JOLLY, FRANK H.	1970
JONES, GARY H.	1965
KOBLE, RONALD L.	1963
KRUPPA, RICHARD A.	1970
KUWIK, PAUL D.	1970
LANDECKER, LOUIS	1969
LEASE, ALFRED A.	1964
LEMASTER, LELAN K.	1961
LINDAHL, LAWRENCE G.	1944
LINNICK, IDA	1949
LONDON, HOYT H.	1934
LUCK, WILLIAM E.	1966
MANCHAK, PAUL J.	1965
MARTINEZ, PETE	1970
MC CAGE, RONALD D.	1970
MC MURRY, JAMES G.	1964
MILLER, CLARENCE M.	1968
MOEGENBURG, LOUIS A.	1969
MOSS JR, JEROME	1960
NANNAY, ROBERT W.	1970
NELSON, ORVILLE W.	1967
NEVITT, THOMAS A.	1966
NEWTON, ROBERT E.	1970
NORMAN, RALPH P.	1955
NORTON, ROBERT E.	1967
OLSON, DAVID O.	19
PAINE, OLIVE	1930
PEARSON, WILLIAM W.	1967
PIERSALL, ARNOLD C.	1964
PORTER, CHARLES B.	1957
POUCHER, KENNETH E.	1968
PRITCHARD, MIRIAM C.	1937
PUCEL, DAVID J.	1966
REBHORN, ELDON A.	1972
REMICK, EDWARD L.	
REPP, VICTOR E.	1970
RICHARDS, KENVYN B.	1970
RICHARDS, MAURICE F.	1950
RICKER, PHILLIP E.	1965
ROKUSEK, H. J.	1964
ROLLINGS, JAMES W.	1967
ROUTH, JERRY D.	1970
ROUTH, JERRY D.	1970
ROWLETT, JOHN D.	1960
ROY, WENDELL L.	1963
RUEHL, PHILIP W.	1961
RUGGLES, STANFORD D.	1969
RUTTER, WILLIAM W.	1971
RUSSELL JR, JAMES A.	1967
SCHACHT, ROBERT C.	1971
SEAL, MICHAEL E.	1969
SHULL, HOWARD I.	1969
SMITH, FREDDY J.	1970
SMITH, ROYAL E.	1969
SNYDER, VANCE B.	1960
SOMMERS, WESLEY S.	1961
SOMMER, SEYMOUR A.	1971
SPENCE, WILLIAM P.	1957
STEELE, GERALD L.	1967
STELZNER, RAYMOND R.	1969
STIEGLER, LAIRD B.	1971
STUESSY, EUGENE L.	1969
SULLIVAN, JAMES A.	1967

TRAUTWEIN, CALVIN L.	1962
VOELKNER, ALVIN R.	1970
WAISNER, GARY L.	1970
WALKER, JOE W.	1970
WARREN, WILLIAM H.	1970
WEFFENSTETTE, WALTER	1965
WEIR, ELDON L.	1970
WILKES, DORAN F.	1966
WILLEMS, ALVIN E.	1970
WILLS, VERNON L.	1965
WILSON, RUSSELL C.	1971
WISEMAN, EMORY E.	1969
WORTHINGTON, ROBERT	1958
WRIGHT, WELCOME E.	1953
YEAGER, LOWERY D.	1965

FACP - FACILITY PLANNING

AUTHOR	DATE
ASHCRAFT, NORMAN C.	1968
BATESON, WILLARD M.	1954
BESTOR, ROLLIE R.	1969
BOLLINGER, ELROY W.	1950
BROWN, GEORGE J.	1960
CHRISTIAN, JACK B.	1969
DEAN, ERNEST D.	1968
DITLOW, GEORGE H.	1956
ENGLISH, ROBERT W.	1950
FINCH, CURTIS R.	1969
HANSEN, RICHARD H.	1967
KELLY, WILLIAM T.	1966
KIST, KEVIN W.	1970
MC GAW, SIDNEY E.	1952
MONROE, ALLEN L.	1970
MOON, DONALD E.	1968
PAGE, CHARLES B.	1953
ROSS, RAYMOND J.	1966
RUDISILL, ALVIN F.	1969
SCHMIDT JR, FRED J.	1941
SMITH, IRVING G.	1969
TRAPANESE, MENNA G.	1964
UXER, JOHN E.	1967
VAN DYKE, ARVID W.	1970
VOLPE, GERALD	1969
WINEGAR, GARY H.	1969
WORTHINGTON, KENT L.	1967

FACU - FACULTY

AUTHOR	DATE
CONROY JR, WILLIAM G	1969
TOLLEY, CHARLES H.	1969

FAID - FINANCIAL AID

AUTHOR	DATE
AUSTIN, ROBERT T.	1964
BASKIN, SAMUEL	1954
BASS, WILBUR A.	1967
BRITT, ROBERT D.	1966
CROUCH, J. PAGE	1968
DALTON, FRANCIS W.	1937
DANAHER, EUGENE I.	1946
DYKEHOUSE, JAY	1950
ELLIS, MARY L.	1970
FORBES, ROY H.	1970
FORKNER, HAMDEN L.	1939
GILMAN, ROBERT A.	1969
GLAU, JON E.	1970
GRELL, DARRELL D.	1967
GRUBER, HERBERT H.	1942
HANSEN, GARY B.	1971
IACOBELLI, JOHN L.	1969
JOCHEN, ALBERT E.	1947
KING, HOMER P.	1934
LIGHT, KENNETH F.	1967
MATTSON, HOMER A.	1970
MC CLELLAN, LARRY D.	1971
MC NAMARA, JAMES F.	1970
MEISNER, ROBERT G.	1967
MONEY, HOMER E.	1956
MORGAN JR, ALFRED D.	1967
MORGAN, JACK W.	1951
NEFF, WILLIAM L.	1941
PATTERSON JR, PHILIP	1968
PENN, THOMAS L.	1968
PIERCE, WILLIAM F.	1967
PRATT, ARDEN L.	1968
SWAENGSUGDI, THANOO	1959
VANDIVER, ROBERT E.	1968

FILM - FILMS

AUTHOR	DATE
CHRISMAN, JOSEPH P.	1970
CUSHING, NELSON N.	1971
DENNISON, BOBBY	1970
HAILES, CHARLES W.	1971
LEMASTER, LELAN K.	1961
LUNDY, LYNDALL L.	1968
MC CAGE, RONALD D.	1970
MORRILL, DAVID	1970
NEWTON, ROBERT E.	1970
SCHOESLER, RONALD D.	1971
SOMMER, SEYMOUR A.	1971
THATCHER, GLENN M.	1970
WILKES, DORAN F.	1966
WOLFE, JAMES M.	1970

FINA - FINANCES

AUTHOR	DATE
ALDRICH, TERRY M.	1969
ANDERSON, ERNEST F.	1966
BENJAMIN, NEAL B.	1969
BUNTEN, CHARLES A.	1955
CAGE, BOBBY N.	1968
COATES, NORMAN	1967
CORAZZINI, ARTHUR J.	1967
CORFIAS, JOHN C.	1967
FINDLEY, WILLIAM L.	1967
FOWLER, HARMON R.	1970
GARRETT, ARTHUR M.	1971
GIBSON, CHARLES H.	1968
GOISHI, FRANK H.	1970
GOISHI, FRANK H.	1970
GRAMBERG, MERLYN L.	1971
GRUBER, HERBERT H.	1942
HANSEN, JOHN R.	1970
HARRIS, JAMES G.	1970
HEATH, JAMES L.	1967
JOHNSON, RAYMOND C.	1971
JURKOWITZ, EUGENE L.	1968
KOCH, NORBERT	1951
MC NAMARA, JAMES F.	1970
MILLER, JOHN G.	1954
OLSEN, EUGENE A.	1968
PARKES, GEORGE H.	1939
PARKS, GERALD A.	1969
PARRY, ERNEST B.	1968
PATTERSON JR, PHILIP	1968
PENDERED, NORMAN C.	1951
PENN, THOMAS L.	1968
POWELL, PAUL E.	1954
RAICHLE, HENRY F.	1969
ROBERTSON, LYLE R.	1968
SHELTON, JOHN A.	1968
SLATTERY, RAYMOND A.	1969
ZWEIBEL, MALCOLM C.	1968

FLUD - FLUID POWER

AUTHOR	DATE
WOLANSKY, WILLIAM D.	1968

FORN - FOREIGN COUNTRIES

AUTHOR	DATE
AKHUN, ILHAN I.	1961
AL-BUKHARI, NAJATI M	1968
ALKAN, OMER C.	1969
ALKAN, OMER C.	1969
ARMSTRONG, JAMES A.	1968
AUSTIN, ROBERT T.	1964
BLECKMAN, JUDITH C.	1971
BOHN, RALPH C.	1957
BRAUN, CHARLES A.	1970
BRILEY, FRANK E.	1967
CHARCONCHAI, RUANG	1963
COATES, NORMAN	1967
DANIELS, BLAIR E.	1937
DINGMAN, ERWIN	1949
EVANS, HARRY L.	1953
FARAHBAKHSHIAN, EBRA	1967
GILMAN, ROBERT A.	1969
HANSEN, GARY B.	1971
HANSSON, KENNETH S.	1966
HARRIS, SUE A.	1970
HOLTROP, WILLIAM F.	1948
HOLTROP, WILLIAM F.	1948
HOSLER, FRED W.	1938
KINI, KULAI H.	1933
KOO, PO-YEN	1968
KRAFT, RICHARD H.	1967
MAGENDZO, ABRAHAM	1969
MC ELHENY, JOHN R.	1960
MOHEE, N. F.	1968
NEF, NELSEN V.	1971
ROBINSON, JAMES W.	1967
RONODIDIJOJO, SOEWAN	1968
SADA, PABLO M.	1971
SHANTHAMALLAPPA, B.	1950
SHARMA, BALDEV R.	1967
SOLIMAN, ABDEL RAZEK	1970
STRUCK, JOHN W.	1956
STUART, HARLAND	1933
SWAENGSUGDI, THANOO	1959
URGELL, FRANCISCO C.	1941
USDANE, WILLIAM M.	1955
VYAS, PREMILA H.	1967
WARDWELL, WAYNE D.	1950
WIJEYEWARDENE, JALUT	1960
ZAREISN, SOLEIMAN	1969

FORS - FORESTS

AUTHOR	DATE
HASH, JOHN A.	1969

FOUN - FOUNDRY AND PATTERNMAKING

AUTHOR	DATE
BAILEY, GERALD D.	1964
BRILEY, FRANK E.	1967
HAUSER, ROGER E.	1971
LITTLE, RICHARD L.	1968

FOUP - FOLLOW-UP

AUTHOR	DATE
AKHUN, ILHAN I.	1961
BAILEY, DONALD A.	1970
BALLO, GARY R.	1971
BENJAMIN, GERALD E.	1968
BENSMAN, CHARLES J.	1969
BOWSER, JAMES A.	1960
BRIGHAM, ELDEN L.	1950
BROWN, B. WESLEY	1960
BURRIS, WAITUS R.	1967
COX, STEVEN G.	1968
DAVIDSON, JOHN E.	1968
ERWIN, WILLIAM R.	1963
FINDLEY, WILLIAM L.	1967
FULLER, FOSTER D.	
GARNER, CAREY C.	1969
GRELL, DARRELL D.	1967
GROSS, ANDREW C.	1968
HAKANSON, JOHN W.	1967
HATALSAN, JOHN W.	1963
HEIN, EDWARD C.	1969
HILL, FREDERICK W.	1942
HORINE, JOHN W.	1961
HOWE, TREVOR G.	1963
JARVIS, JOHN A.	1953
JOHNSON, THOMAS P.	1967
KEIL, RAYMOND L.	1966
KLATT, LAWRENCE A.	1967
KRAFT, RICHARD H.	1967
LEMLEY, JOE W.	1970
LEONARD, REGIS L.	1950
LINDAU, ORA F.	1968
LOGUE, JAY L.	1959
MAC DONALD, MANLEY E	1944
MALKAN, JEROME M.	1967
MATTESON, GERALD R.	1966
MC CALLUM, HARRY N.	1967
MICHIE, JACK	1968
MILAM, THOMAS R.	1968
MORELAND JR, HENRY C	1970
MORELAND JR, HENRY C	1970
NELSON, A. FRANK	1955
PAUTLER, ALBERT J.	1967
PLUSCH, JAMES O.	1967
QUICK, OTHO J.	1954
ROBERTS, EDWARD R.	1971
SHACKELFORD, RICHARD	
SPENCER, ALBERT G.	
STROUT, GEORGE M.	1970
TROOBOFF, BENJAMIN M	1968
TUTTLE, CHESTER D.	1965
VOLK, VINCENT A.	1955
WALLS, W. DALE	1964
WATKINS, KENNETH E.	1966
WELSH, DONALD J.	
WEST, WILLIAM E.	1969
WHITE, ALVIN M.	1958
WIEHE, THEODORE F.	1954
WILLIAMS, MICHAEL	1970
WILSON, WADE	1954
ZANE, LAWRENCE F.	1968

FURN - FURNITURE

AUTHOR	DATE
GERBER, RUSSELL L.	1966
KAISER, HAROLD F.	1968
NEUBAUER, GERHARDT W	1956
SCHENCK, JOHN P.	1969

GNED - GENERAL EDUCATION

AUTHOR	DATE
BAKER, GLENN S.	1968
BEARDEN, WILLIAM W.	1967
BRASTED, F. KENNETH	1953
BUDKE, WESLEY E.	1970
CANDOLI, I. C.	1967
COHEN, CHESTER G.	1970
COMBS, STANLEY L.	1948
CRAWFORD JR, BRYANT	1961
DANOVITZ, SAUL	1957
DAVIS, EDDIE M.	1971
DOLEZAL, WILMA M.	1968
EATON, MERRILL T.	1932
ENGELBREKTSON, SUNE	1961
EVANS, WILSON A.	1954
FALES, ROY G.	1948
FARR, WILBUR J.	1958
GEARING, PHILLIP	1970
GILBREATH, TOMMY D.	1971
GILLILAND SR, LONNIE	1955
GRONEMAN, CHRIS H.	1950
HALL, CLARENCE E.	1969
HANSSON, KENNETH S.	1966
HAWKINS, LESLIE V.	1953
HAWLK, ROBERT H.	1960
HEEP, RICHARD H.	1939
HENDRIX, SAMUEL D.	1942
JACKSON, ROSS P.	1967
JACOBSEN, JAMES H.	1964
JENKINS, FARRELL T.	1969
JOHNSTON, KENNETH G.	1966
JORDAN, THOMAS F.	1942
KEENER, CLYDE	1959
KIMBALL, KENNETH R.	1967
KJOS, OSCAR E.	1954
KRAFT, RICHARD H.	1967
LEAN, ARTHUR E.	1948
LINTON, JOHN A.	1951
LOWENSTEIN, NORMAN	1955
LUDINGTON, JOHN R.	1940
MADDOX, MARION E.	1951
MASSEY, HAL	1965
MAXCY, ELLIS O.	1941
MAYS, WILLIAM A.	1954
MC KENZIE, CHARLES R	1971
MC VICKER, HOWARD E.	1970
MILLER, WAYNE E.	1969
MONROE, LYNNE C.	1939
MORGAN JR, ALFRED D.	1967
MOULLETTE, JOHN B.	1970
NESWICK, LAWRENCE G.	1971
OAKLEY, GARY D.	1970
OHLSON, ELI E.	1943
PUGH, DWIGHT A.	1969
QUICK, OTHO J.	1954
REIMER, MILTON K.	1968
ROBERTS, NORMAN N.	1967
RUDIGER, ELMER R.	1952
SCHMITT, VICTOR A.	1953
SCHOLES, CHARLES E.	1968
SEAMAN, DON F.	1968
SEDGWICK, LORRY K.	1965
SPEER, HUGH W.	1950
SPENCER, ALBERT G.	
STEPHENS, ROBERT L.	1969
STUTEVILLE, CLAUDE E	1971
TATUM JR, JULIAN P.	1967
THOMAS JR, WADE F.	1957
THORPE, CLAIBURNE B.	1968
TILLEY, TRUMAN E.	1945
VERMEULEN, ROBERT	1968
WHEELER, EDWARD A.	1965
WILMOTT, JOHN N.	1941

GNSH - GENERAL SHOP

AUTHOR	DATE
BORRI, ROBERT	1942
CROWDER, GENE A.	1968
DECKER, HOWARD S.	1953
ERICKSON, JOHN H.	1953
KLEINBACH, MERLIN H.	1959
MARCH, BRYCE D.	1961
MC MURRY, JAMES G.	1964
MILLER, JOHN G.	1954
MILLER, THOMAS W.	1958
MILLER, WILBUR R.	1960
MITCHELL, JOHN	1954
REMICK, EDWARD L.	
THOMPSON, ROBERT L.	1947
VAN TASSEL, RAYMOND	1948

GRAD - GRADUATE PROGRAMS

AUTHOR	DATE
BALDWIN, THOMAS R.	1971
DEVLIN, LEON G.	1971
FEIRER, JOHN L.	1946
MORELAND JR, HENRY C	1970
MORELAND JR, HENRY C	1970
PERSHING, REX W.	1970
SLATER, JOHN B.	1970
WHEELER, EDWARD A.	1965
WIGEN, RAY A.	1957

GRAP - GRAPHICS

AUTHOR	DATE
BROWN, GEORGE C.	1963
CARLSEN, DARVEY E.	1961
COX, ROBERT L.	1970
DE VORE, PAUL W.	1961
DEADY, JOHN J.	1970
FECIK, JOHN T.	1970
FRANTZ JR, NEVIN R.	1967
FUEG, HENRY L.	1971
GLOGOVSKY, RONALD J.	1970
GRAY, THOMAS F.	1970
GYSLER, RANDOLPH L.	1971
HERBERTS, ROGER F.	1971
HERR, JAMES F.	1970
HERR, JAMES F.	19
HOLT, JAY F.	1970
HOOTS JR, WILLIAM R.	1966
HORNBUCKLE, GARY D.	1967
JASNOSZ, THOMAS A.	1969
JENKINS, JOHN D.	1969
KEMP, WILLIAM H.	1966
MELINE, CHARLES W.	1965
MORRILL, DAVID	1970
MOSS JR, JEROME	1960
NICHOLS, DWIGHT W.	1955
NYSTROM, DENNIS C.	1969
PRUST, ZENAS A.	1964
PUFAHL, VIRGIL R.	1969
RAYFORD, ERWIN W.	1967
REED, RICHARD L.	1971
RICE, CHARLES M. M.	1958
RIETH, CLAUDE F.	1966
SCHOESLER, RONALD D.	1971
SCHWEINFURTH, LUDWIG	1969
SEDGWICK, LORRY K.	1965
STEGMAN, GEORGE K.	1962
STORY, CHARLES H.	1970
STRANDBERG, C. E.	1963
WEIR, THOMAS S.	1955
WILSON, MICHAEL C.	1969
WOLFE, JAMES M.	1970
WOODRUFF, JAMES N.	1971
WYNN, PHILIP D.	1970

GUID - GUIDANCE AND COUNSELING

AUTHOR	DATE
ABROMAITIS, JOSEPH J	1969
AGNOR, HERBERT E.	1970
AUCKER, JOHN R.	1970
BEHM, HARLEY D.	1967
BENSON, WILLARD A.	1959
BING, KENNETH L.	1941
BLEDSOE, HARRY J.	1968
BLUM, ROBERT E.	1965
BOONE, JAMES L.	1966
BRIGHAM, ELDEN L.	1950
BRINKMAN, FRED J.	1970
BURNS, WILLIAM E.	1965
CLAUSEN, JOHN N.	1955
CLENDENNING, LEE R.	1972
CLEVELAND, JOHN M.	1961
CLIFTON, RONALD J.	1970
CONLEY, FRANKLIN	19
CRAWFORD, JOHN E.	1941
DEAN, C. THOMAS	1951
DENSLEY, KENNETH G.	1967
DIRKSEN, DENNIS A.	1969
DRAKE, LAWRENCE C.	1966
DRAWDY, LARRY A.	1971
DUNHAM, PHIL R.	1970
DYKE, EUGENE L.	1962
EHRENBORG, JOHN D.	1963
ELLIOTT, BURTON L.	1971
ENSMAN, LEO M.	1957
FEATHER, DON B.	1949
GIACHINO, JOSEPH W.	1949
GOFF, WILLIAM H.	1967
HALL, DAVID H.	1971
HARRIS, VIRGINIA J.	1961
HATALSAN, JOHN W.	1963
HENRY, GEORGE F.	1954
HISER, PAUL T.	1958
HOERNER, HARRY J.	1969
HOLLINSHEAD, MERRILL	1952
HOLMEN, HOLGER E.	19
HORINE, JOHN W.	1961
JACKSON, ROSS P.	1967
JARVIS, JOHN A.	1953
JOHNSON, ROBERT O.	1968
JOHNSON, RUFUS G.	1949
JOHNSON, THOMAS P.	1967
JOHNSTON, WALLACE L.	1968
KOHL, ERNEST O.	1949
KURTZ, HARMON H.	1959
LAUBENTHAL, CRAIG D.	1969
LEAVITT, WILLIAM C.	1969
LYBARGER, ALVIN E.	
MAC DONALD, MANLEY E	1944
MARSHALL JR, THOMAS C	1941
MC CABE, FRED J.	1970
MEOSKY, PAUL R.	1967
MESSMAN, WARREN B.	1963
MILLER, L. PAUL	1939
NEUFELD, JACOB A.	1968
NIEMELA, ALBERT W.	1949
NOLL, ROBERT F.	1967
OAKLEY, HUGH L.	1954
OLSON, JERRY C.	1964
PEERSON, RICHARD H.	1969
RISHER, CHARLES G.	1953
ROBINSON, FRANK E.	1955
SHORE JR, THOMAS C.	1970
SOLTYS, ROBERT G.	1971
STANTON, MILDRED B.	1938
STEPHENS, GEORGE T.	1969
STORMER, DONALD L.	1967
THOMAS JR, WADE F.	1957
TURECHEK, ARMIN G.	1967
VACEK, WILLIAM L.	1962
VAN DERSLICE, JOHN F	1967
WANGER, RUTH	1971
WATKINS, KENNETH E.	1966
WERNER, WAYNE E.	1969
WILLENSON, MILTON W.	1968
WINDLE, JIM L.	1968
WITT, HENERY F.	1971
WOJCIK, JAMES A.	1971
[illegible]	1966

HS - HIGH SCHOOL

AUTHOR	DATE
ABROMAITIS, JOSEPH J	1969
ALGER JR, LEON J.	1967
ALLEN, WILSON S.	1936
ALSUP, REA T.	1967
AMBERSON, MAX L.	1958
BAKER, ALFRED E.	1943
BATESON, WILLARD M.	1954
BAUGRUD, KIM J.	19
BIEWALD, EDWARD C.	1969
BILLINGS, DONN	1953
BLACK, RALPH R.	1959
BOLLINGER, ELROY W.	1950
BORRI, ROBERT	1942
BORUM, JOHN F.	1969
BOX SR, MARSHALL R.	1967
BROADHURST, JOHN C.	1949
BUNTEN, CHARLES A.	1955
BURROUGHS, MARVIN G.	1970
CAMPBELL, GORDON	1969
CHARCONCHAI, RUANG	1963
COHEN, JERRY M.	1969
COHEN, LOUIS A.	1965
COLEMAN, WAYNE D.	1967
CONROY JR, WILLIAM G	1969
CORAZZINI, ARTHUR J.	1967
CRUMPTON, CHARLES R.	1952
CRUMP, DANNY L.	1968
D COSTA, AYRES G.	1968
DOANE, RAYMOND C.	1956
DOERR, JOHN J.	1967
DRAKE, LAWRENCE C.	1966
EATON, MERRILL T.	1932
EDMUNDS, NIEL A.	1969
ELLIOTT, CHARLES A.	1958
ENGLISH, ROBERT W.	1950
ENVICK, DONALD D.	1968
EPHRAIM, JOHN	1969
FARABAUGH, MARTIN P.	1966
FARMER, JOE H.	1950
FIKE, IRIS L.	1956
FINDLEY, WILLIAM L.	1967
FORKNER, WILLIAM R.	1968
FRANK JR, HARRY E.	1969
FRESCHET, FERUCIO	1969
FRISBY, RUSSELL C.	1968
GADBOIS, ROBERT L.	1968
GOLOMB, ARTHUR E.	1962
GRAINGE, FLOYD M.	1967
GRANNIS, GARY E.	1970
GROVER, JERRY D.	1968
GROVES, RAMSEY M.	1966
HARRISON, ELTON C.	1948
HARRIS, SUE A.	1970
HAWLK, ROBERT H.	1960
HAYES, BILLY D.	1968
HEGER, ROBERT J.	1968
HENDRIX, WILLIAM F.	1967
HILTON, ROSS C.	1970
HOLLOWAY, LEWIS D.	1967
HOSLER, FRED W.	1938
HUXOL, ROBERT L.	1954
IRVINE, FLEET R.	1968
IVINS, WILSON H.	1947
JACOBSEN, JAMES H.	1964
JENSEN, THOMAS R.	1968
JETTER, EVERETT V.	1932
JOHNSON, ROBERT C.	1968
JOHNSON, THOMAS P.	1967
JORDAN, THOMAS F.	1942
KAPLAN, WILLIAM A.	1970
KAZANAS, HERCULES C.	1967
KOEHLER, EVERETT E.	1959
KOHL, ERNEST O.	1949

KRUBECK, FLOYD E.	1954
KURTZ. HARMON H.	1959
LEONARD, REGIS L.	1950
LOCKETTE, RUTHERFORD	1956
LOWENSTEIN, NORMAN	1955
LUCK, WILLIAM E.	1966
MALKAN. JEROME M.	1967
MANCHAK, PAUL J.	1965
MARSHALL JR,THOMAS C	1941
MASON. WILLIAM H.	1970
MAYFIELD, WINIFRED A	1970
MAYS. WILLIAM A.	1954
MC ARTHUR, ROSS J.	1955
MC CLEARY, JOSEPH L.	1967
MC LONEY WIRT L.	1965
MC NEIL, JACKSON M.	1963
MEIERHENRY, WESLEY C	1946
MELINE, CHARLES W.	1965
MENEGAT. PAUL A.	1953
MEOSKY. PAUL R.	1967
MICHELSON, EINO S.	1956
MILAM, THOMAS R.	1968
MILLER, JOHN G.	1954
MONGERSON, MARTIN D.	1968
MOORE. ALFRED H.	1954
MORTON. BERRY E.	1950
MULLER. ERWIN T.	1938
NELSON. HOWARD F.	1953
NELSON. LLOYD P.	1955
NICKERSON, PAUL S.	1947
NIELSEN, ARNOLD M.	1970
OAKLEY. HUGH L.	1954
OHLSON. ELI E.	1943
OLSEN. FRED A.	1962
PAINE. HARRY W.	1943
PALOW. WILLIAM P.	1969
PANKOWSKI, DALLAS J.	1966
PAUTLER, ALBERT J.	1967
PEITHMAN, ROSCOE F.	1955
PERDUE. SAUL M.	1954
PHILLIPS JR, MILTON	1967
PLUSCH. JAMES O.	1967
PRUSKI. JOHN	1958
RAY. J. EDGAR	1944
REED. HOWARD D.	1948
REISENGER, RAYMOND H	1970
RICE. CHARLES M. M.	1958
RICHARDS. JOHN V.	1970
RINCK. JOE A.	1968
ROBBINS. EVELYN G.	1949
ROBERTS, LAURENCE A.	1968
ROBINSON, CLARK N.	1947
ROLLINGS, JAMES W.	1967
RUSSELL, LESTER F.	1968
RYAN. ROBERT D.	1964
SALTEN. DAVID G.	1944
SANDERSON. HERBERT	1948
SCHREIBER, ERNEST	1967
SCHULTZ, IRWIN J.	1949
SHEMICK, JOHN M.	1960
SHIH. WEI-TUN	1969
SILVER. HARVEY A.	1967
SILVEY. WRAY D.	1950
SMITH JR, CHARLES E.	1969
SOLIMAN. ABDALLA M.	1967
SONDERMAN. ROBERT B.	1956
SPENCER. ALBERT G.	
STANGL. OTTO A.	1968
STEEB, RALPH V.	1959
STOMBAUGH, RAY M.	1936
STORMER, DONALD L.	1967
STRANDBERG, C. E.	1963
SVENDSEN, CLARENCE R	1970
TATUM JR, JULIAN P.	1967
THOMAS. JOSEPH K.	1957
THROWER, ROBERT G.	1961
TORBETT, DANIEL L.	1965
TURNER, ERWIN	1958
TUXHORN, SCOTT E.	1967
UNDERHILL, CHARLES M	1968
VAN DYKE, ARVID W.	1970
WAGNER. EDGAR S.	1960
WALLIS, DONALD E.	1965
WARDWELL, WAYNE D.	1950
WARRICK, GLENN D.	19
WERNER, WAYNE E.	1969
WILMOTT, JOHN N.	1941
WILSON, MICHAEL C.	1969
WOCKENFUSS, WILLIAM	1960
WOODEN, RALPH L.	1956
WRIGHT, LAWRENCE S.	1954
WRIGHT. OSCAR W.	1954
YOUMANS, CHARLES V.	1955
YOUNG. TALMAGE B.	1953
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HIED - HIGHER EDUCATION

AUTHOR	DATE
ADAMS. DEWEY A.	1966
AGNOR. HERBERT E.	1970
ALGER JR, LEON J.	1967
ALLEN. WILLARD A.	1963
AMELON. DONALD J.	1965
ARMSTRONG, JAMES A.	1968
ARVEY. RICHARD D.	1970
ASHCRAFT, NORMAN C.	1968
ATKINS. MICHAEL B.	1971
AUER, HERBERT J.	1971
BAAB. CLARENCE T.	1950
BABCOCK, JAMES G.	1969
BAKER. GLENN E.	1966
BALDWIN, THOMAS R.	1971
BALLO. GARY R.	1971
BALL. JOHN F.	1971
BASKIN. SAMUEL	1954
BASS, WILBUR A.	1967
BATESON, WILLARD M.	1954
BATES. WILFRED M.	1968
BECKER JR, CHARLES W	1967
BECKHAM. JOE W.	1969
BECK, BURREL H.	1967
BECK, EUGENE J.	19
REED. GALER W.	1970
BEEM. HARLEY D.	1967
BENDIX. JOHN L.	1965
BENSON. WILLARD A.	1959
BERGMAN, KENNETH H.	1963
BOCKMAN, DAVID C.	1971
BOLICK. GERALD M.	1968
BOSS. RICHARD D.	1968
BOYER. CAROLINE K.	1966
BRADLEY, HARRY L.	1967
BRENCKLE. AUTHUR G.	1968
BROOKER, GEORGE R.	1970
BROCKING, WALTER J.	1948
BROWNRIGG, JERRY R.	1962
BROWN. GEORGE C.	1963
BROWN. MARILYN K.	1970
BRUCE. PHILLIP L.	1964
BRUE, JAMES E.	1969
BURGHARDT, WILLIAM F	1950
BURKERT. WILLIAM G.	1970
BUTTERY, WILLIAM A.	1971
CAGE. BOBBY N.	1968
CALLEN. LOUIS J.	1952
CAMERON, WALTER A.	1969
CANDOLI, I. C.	1967
CARLSEN, DARVEY E.	1961
CARLSON, HENRY L.	1967
CARLSON, HENRY L.	1967
CLABAUGH, RICHARD D.	1971
CLARK. JAMES V.	1967
CLECKLER, JAMES D.	1969
COLEMAN. JAY M.	1971
COLLINS, SAMUEL R.	1962
COMM, WALTER	1967
COMSTOCK, THOMAS W.	1969
COOMER, JERRY W.	1971
CORFIAS, JOHN C.	1967
COTRELL, CALVIN J.	1960
COZZENS. CHARLES R.	1965
CRAFT. CLYDE D.	1967
CRAIG JR, WILLIAM L.	1970
CRAWFORD, HAROLD W.	1960

CRIST, LEROY	1961
CROMER, CHALMERS A.	1970
CROUCH, J. PAGE	1968
CUMMINGS, LAWRENCE J	1969
CUMMINS, CARL C.	1957
DAINES, JAMES R.	1968
DARDEN, BYRNES L.	1951
DAVIDSON, JOHN E.	1968
DAVID, WILLIAM J.	1968
DAVIS, JIM L.	1966
DECKER, GEORGE C.	1943
DEVLIN, LEON G.	1971
DIEDRICK, WALTER E.	1971
DIRKSEN, DENNIS A.	1969
DOLAN, ROBERT E.	1971
DUGGER, CECIL W.	1968
DUNHAM, PHIL R.	1970
DUNLAP, EUGENE W.	1962
DYKE, EUGENE L.	1962
ECKER, LOUIS G.	1965
EICHER, ROBERT S.	1968
ENGLISH, ROBERT W.	1950
EVANS, WILSON A.	1954
FAHS, ELDON E.	1967
FALKENSTINE, JAMES C	1965
FEATHER, DON B.	1949
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FENDLASON, DONALD W.	1969
FISHER, RICHARD E.	1956
FOLEY JR, JOHN P.	1968
FOWLER, EWELL W.	1949
FOWLER, HARMON R.	1970
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FRAGALE, MARVIN J.	1969
FRANCIS, GEORGE H.	1966
FROELICH, DONALD M.	1970
GAILEY, DAVID J.	1969
GALLINELLI, JOHN W.	1970
GAVIN, GORDON O.	1968
GHEEN, W. LLOYD	1970
GHEEN, WILLIAM L.	1970
GIFFORD, KENNETH K.	1970
GINTHER, RICHARD E.	1964
GOETZ, ROBERT E.	1958
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GRAHAM, GREGORY S.	1971
GRAY, JAMES A.	1969
GRIFFITH, JOHN L.	1967
GRUMBLING, HENRY M.	1968
HAKANSON, JOHN W.	1967
HAMMACK, CHARLES R.	1967
HAMMER, GARLAND G.	1951
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HANSON, DURWIN M.	1956
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HOBBS, ADDISON S.	1971
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ISOM, VERNON H.	1970
JACKSON, PETER A.	1965
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KEITH, CHARLES W.	1964
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KOEHLER, EVERETT E.	1959
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LAND, SAMUEL L.	1931
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LITTLE, RICHARD L.	1968
LOWENSTEIN, NORMAN	1955
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LYONS, RICHARD A.	
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MAGOWAN, ROBERT E.	1967
MALEY, DONALD	1949
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MANGANELLI, FRED D.	1959
MARBURGER, EDWARD F.	1948
MC CALLUM, HARRY N.	1967
MC EOWEN, ROBERT H.	1967
MC KENZIE, CHARLES R	1971
MC PHERSON, DANIEL W	1971
MESSERSCHMIDT, DALE	1967
MESSMAN, WARREN B.	1963
MILLER, MARK E.	1967
MONROE, LYNNE C.	1939
MORELAND JR, HENRY C	1970
MORELAND JR, HENRY C	1970
MORGAN JR, ALFRED D.	1967
MORRISON, JESSIE S.	1969
MUDGETT, ALBERT G.	1958
MUND, RICHARD G.	1970
NELSON, REX A.	1963
NEUFELD, JACOB A.	1963
NIELSEN, ERWIN E.	1969
NORTON, ELIZABETH N.	1970
NYSTROM, DENNIS C.	1969
O DELL, ROBERT D.	1963
O NEILL, JOHN N.	1971
OPPELT, MARION O.	1967
PAPP, ALEXANDER G.	19
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PERSHING, REX W.	1970
PHALLEN, CHARLES W.	1958
PHILLIPS, DONALD S.	1963
PHILLIPS, KENNETH	1950
PHILLIPS, LOREN D.	1954
PIERSALL, ARNOLD C.	1964
PITTMAN, FRANK M.	1970
PRUSKI, JOHN	1958
PUTMAN, CARL E.	1970
RAICHLE, HENRY F.	1969
RANDEL, STEPHEN V.	1957
REAMS, JAKE W.	1963
REED, WILLIAM T.	1947
REIMER, MILTON K.	1968
RIETH, CLAUDE E.	1966
ROBERTSON, LYLE R.	1968
ROBERTS, NORMAN N.	1967
ROTHMAN, ROBERT A.	1969

RUEHL, PHILIP W.	1961
RUITER, WILLIAM W.	1971
RYAN, ROBERT D.	1964
SADA, PABLO M.	1971
SCHAEFER, ROGER A.	1969
SCHOLES, CHARLES E.	1968
SHAW, GERALD H.	1968
SHERMAN, DOUGLAS R.	1956
SHRADER, ROBERT F.	1967
SILVEY, WRAY D.	1950
SILVIUS, HAROLD G.	1946
SLATTER, JOHN B.	1970
SMITH, DARRELL L.	1969
SMITH, FREDDY J.	1970
SMITH, HERBERT E.	1940
SMITH, ROYAL E.	1969
SOMMERS, WESLEY S.	1961
STANTON, WILLIAM A.	1967
STEGMAN, GEORGE K.	1962
STONER, WILLIAM D.	1940
STONE, THOMAS C.	1969
STORY, CHARLES H.	1970
STUESSY, EUGENE L.	1969
SULLIVAN, THOMAS W.	1967
SUTTON, FRED C.	1961
SWAENGSUGDI, THANOO	1959
TAYLOR JR, HOUSTON	1968
TEEL, DEAN A.	1967
THOMAS JR, WADE F.	1957
THOMAS, ALVIN I.	1957
THORNTON, ROBERT W.	1971
TIERNEY, WILLIAM F.	1952
TOLLEY, CHARLES H.	1969
TORBETT, DANIEL L.	1965
TORRES, LEONARD	1963
TOWERS, EDWARD R.	1956
TRAMBLEY, JOHN B.	1969
TREGO, JOHN W.	1958
TUCKER, CASEY A.	1965
TURNER, ALFRED B.	1941
TURNER, BRIDGES A.	1941
TUXHORN, SCOTT E.	1967
VACEK, WILLIAM L.	1962
VASEK, RICHARD J.	1967
VAUGHN, MAURICE S.	1967
VINEYARD, BENNY S.	1962
VOLK, VINCENT A.	1955
VOLPE, GERALD	1969
VON STROH, GORDON E.	1968
WALKER, JOE W.	1970
WALL, GUSTAVE S.	1951
WARGO, WILLIAM D.	1968
WASHBURN, CLYDE I.	1969
WEBER, EARL M.	1961
WEIR, THOMAS S.	1955
WHEELER, EDWARD A.	1965
WHINFIELD, RICHARD W	1969
WHITNEY, LARRY J.	1967
WIGEN, RAY A.	1957
WILBER, GEORGE D.	1941
WILKES, DORAN F.	1966
WILSON, ROGER J.	1970
WILSON, WADE	1954
WRIGHT, JERAULD B.	1969
YEAGER, LOWERY D.	1965
YOUNG, ROBERT W.	1966
ZABCIK, CALVIN L.	1969
ZOPPETTI, MATTHEW	1970

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AUTHOR	DATE
ALDRICH, TERRY M.	1969
ALLEN, DAVID	1962
ASHBROOK, WILLIAM D.	1944
BAILY, ATHOL R.	1949
BARLOW, MELVIN L.	1949
BARTEL, CARL R.	1959
BATESON, ROBERT E.	1951
BAUER, CARLTON E.	1955
BEATTY, CHARLES J.	1967
BERGENGREN JR, ROY F	1953
BLACKBURN, SAMUAL A.	1930
BLECKMAN, JUDITH C.	1971
BLEEKE, MILTON H.	1968
BORRI, ROBERT	1942
BRASTED, F. KENNETH	1953
BRAUN, CHARLES A.	1970
BROWN, NATHAN	1954
BRUSH JR, GEORGE W.	1969
BZOWSKI, EDWARD D.	1969
CASSIMATIS, PETER J.	1967
COMM, WALTER	1967
COOPER, JACK H.	1961
CRAWSHAW, MARSHALL R	1950
CUMMINGS, LAWRENCE J	1969
CZARNECKI, EDGAR R.	1967
DALTON, FRANCIS W.	1937
DASGUPTA, DEBENDRA C	1932
DAVIDSON, ADELE	1960
DECK, WILLIAM L.	1955
DINGMAN, ERWIN	1949
DITZLER, WALTER E.	1953
DODGE, ARTHUR F.	1935
DYKEHOUSE, JAY	1950
ELLENWOOD, THEODORE	1960
ELLIS, MARY L.	1970
ENCK, HENRY S.	1970
EVANS, HARRY L.	1953
FEE, EDWARD M.	1933
FIKE, IRIS L.	1956
FINNEY JR, JOHN D.	1967
FRANKLIN, MARION E.	1952
FREDERICK, LAWRENCE	1955
GENEVRO, GEORGE W.	1966
GILMAN, ROBERT A.	1969
GRAINGE, FLOYD M.	1967
HACKETT, DONALD F.	1953
HALL, CLYDE W.	1953
HAMILTON, ALLEN T.	1941
HAMMER, GERALD K.	1962
HAMMOND, ROBERT G.	1956
HANSEN, GARY B.	1971
HANSSON, KENNETH S.	1966
HARPER, HERBERT D.	1934
HARRISON, OVAL S.	1940
HAWS, ROBERT W.	1947
HEILMAN, CASMER F.	1970
HEJKAL, OTTO C.	1950
HILL, JAMES L.	1953
HOLTROP, WILLIAM F.	1948
HORTON, GEORGE R.	1967
HUGHES, WAYNE P.	1942
HUNT, DE WITT T.	1939
JENKINS, REESE V.	1966
JOCHEN, ALBERT E.	1947
JOHNSTON, RICHARD E.	1971
KARNES, M. RAY	1948
KINGERY, LYLE M.	1963
KING, HOMER P.	1934
KLEIMAN, HERBERT S.	1966
KRAUSE, ROY W.	1970
KREMPA, JOHN S.	1966
KRUMBIEGEL, WALTER O	1955
LA BOUNTY JR, HUGH O	1961

LANG, EDWARD H.	1942
LEWIS, MYRON E.	1970
LOUGHLIN, RICHARD L.	1948
LUCE, LAWRENCE W.	1957
MAGENDZO, ABRAHAM	1969
MATTSON, HOMER A.	1970
MAYFIELD, WINIFRED A	1970
MC ELHENY, JOHN R.	1960
MC GIVNEY, JOSEPH H.	1967
MENEGAT, PAUL A.	1953
MERTZ, OTTO	1954
MEYERS, ALBERT	1967
MEYER, HARVEY K.	1951
MILLER, DAVID H.	1971
MILLER, JOHN G.	1954
MILLER, MURRAY L.	1947
MILLER, THOMAS W.	1958
MONROE, LYNNE C.	1939
MOODY, RICHARD D.	1968
NEUBAUER, GERHARDT W	1956
PALMER, HAROLD G.	1950
PARKHILL, GEORGE D.	1938
PARNES, SIDNEY J.	1954
PASTER, JULIUS	1959
PATE JR, DOVE H.	1970
PFEIFFER JR, HERBERT	1939
PENN, THOMAS L.	1968
PENNY, FOREST L.	1960
PORTER, SAM R.	1962
ROBINSON, WALTER J.	1950
ROSS, BENJAMIN P.	1944
ROSS, B. JOHN	1971
RYAN, JAMES E.	1964
SCHURE, ALEXANDER	1950
SEARS JR, WILLIAM P.	1930
SECKENDORF, ROBERT S	1960
SHEFFIELD, EVERETT A	1969
SLACK, NEILL C.	1963
SMITH, HERBERT E.	1940
SOLIMAN, ABDEL RAZEK	1970
SONDERMAN, ROBERT B.	1956
SONNY, JACOB	1971
SPINTI, ROBERT J.	
SREDL, HENRY J.	1964
STOMBAUGH, RAY M.	1936
STREICHLER, JERRY	1963
STUART, CHIPMAN G.	1968
SVENDSEN, ETHAN A.	1961
TAYLOR, CYRUS B.	1955
THOMAS, ALVIN I.	1957
THOMAS, KENNETH R.	1967
TWOMBLY, ROBERT C.	1968
URGELL, FRANCISCO C.	1941
VAN DUSEN, EDWARD B.	1948
VAN TASSEL, RAYMOND	1948
WEAGRAFF, PATRICK J.	1971
WIJEYEWARDENE, JALUT	1960
WILBUR, LOUISE	1931
WILLIAMS, MICHAEL	1970
ZANKOWICH, PAUL	1956

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ABROMAITIS, JOSEPH J	1969
ADAMS, JOHN V.	1947
AINSWORTH, CHESTER B	1956
ALLEN, WILLARD A.	1963
ALLEN, WILSON S.	1936
ALSIP JR, BENJAMIN H	1965
ANDERSON, DONALD N.	1963
ANDERSON, ROBERT G.	1967
ANDERSON, W. C.	1954
BAAR, CLARENCE T.	1950
BACKUS, KERBY D.	1968
BAGLEY, RONALD E.	1965
BAILEY JR, JAMES H.	1961
BAILEY, GERALD D.	1964
BAIRD, RONALD J.	1960
BAKER, GEORGE L.	1970
BALLARD, JOHN R.	1966
BALL, CHIALES E.	1958
BALL, JOHN E.	1971
BATESON, WILLARD M.	1954
BATES, WILLIAM M.	1969
BAUER, CARLTON E.	1955
BEARDEN, WILLIAM W.	1967
BEATTY, CHARLES J.	1967
BEDNAR, ERNEST G.	1955
BEKTON, WILLIAM E.	1965
BELL, CHARLES L.	1964
BENDIX, JOHN L.	1965
BENSON, KENNETH R.	1956
BERGENGREN JR, ROY F	1953
BERRY, ARTHUR O.	1967
BIEDLER, JOHN S.	1958
BIGGAM, WILLIAM R.	1958
BIRNBACH, SIDNEY B.	1948
BLACK, DONALD E.	1970
BLOMGREN, ROGER D.	1962
BONDE, ROBERT G.	1964
BORRI, ROBERT	1942
BORTZ, RICHARD F.	1967
BORUM, JOHN F.	1969
BOWERS, VICTOR L.	1941
BOWMAN, JAMES E.	1958
BROWN, ROBERT D.	1955
BRUECKMAN JR, JOHN C	1969
BURNS, WILLIAM E.	1965
BURROUGHS, MARVIN G.	1970
BUXTON, ROBERT E.	1960
BYROM, JOHN M.	1957
BZOWSKI, EDWARD D.	1969
CAPRON, JOHN H.	1955
CARLSEN, DARVEY E.	1961
CARTER, JOHN P.	1970
CAULEY, MICHAEL J.	
CHAMPION, GEORGE	1965
CHAROONCHAI, RUANG	1963
CHARLESWORTH, KENNET	1963
CHAVOUS, ARTHUR M.	1945
CHRISTIAN, JACK B.	1969
CHRISTOFFEL, FREDERI	1960
CLAY, KENNETH R.	19
COLEMAN, JAY M.	1971
COLLINS, CHARLES J.	1968
COLLINS, HERMAN G.	1966
COOVER, SHRIVER L.	1941
CRAWFORD JR, BRYANT	1961
CRIST, LEROY	1961
CROWDER, GENE A.	1968
CRUMP, DANNY L.	1963
CUMMINS, CARL C.	1957
D AMBROSIO, VINCENT	1969
DARDEN, BYRNES L.	1951
DAVENPORT, JOE U.	1959
DAVIS, EDDIE M.	1971
DAWSON, KENNETH E.	1965
DE OLD, ALAN R.	1971
DECKER, GEORGE C.	1943
DENNIS, ERVIN A.	1966
DIRKSEN, DENNIS A.	1969
DITLOW, GEORGE H.	1956
DOUTT, RICHARD F.	1965
DRAZEK, STANLEY J.	1950
DUENK, LESTER G.	1966
DUGGER, WILLIAM E.	1970
DUTTON, BERNARD	1966
ELDER, WALTER T.	1941
ENGELBREKTSON, SUNE	1961
ENSMAN, LEO M.	1957
ENZIAN, HAROLD J.	1967
EPHRAIM, JOHN	1969
ERICKSON, JOHN H.	1953
ERWIN, WILLIAM R.	1963
ESTABROOKE, EDWARD C	1939
ESTABROOKE, PAUL L.	1939
EVANS, HARRY L.	1953
FALES, ROY G.	1948
FALLS, JOHN F.	1968
FARABAUGH, MARTIN P.	1966
FARMER, JOE H.	1950
FAZZINI, PHILLIP A.	1970
FEIRER, JOHN L.	1946
FEIRER, JOHN L.	1946

FERNS, GEORGE W.	1962
FINKELSTEIN, ABRAHAM	1959
FLEMING, BRUCE E.	1969
FLUG, EUGENE R.	1967
FOLEY JR, DENIS J.	1967
FOSS, MAURICE F.	1958
FRANKSON, CARL E.	1948
FRITZ, ROBERT C.	1960
FUZAK, JOHN A.	1948
GADBOIS, ROBERT L.	1968
GAINES, THOMAS R.	1955
GALLINGTON, RALPH O.	1947
GAVIN, GORDON O.	1968
GENEVRO, GEORGE W.	1966
GERBRACHT, CARLTON J	1949
GETTLE, KARL E.	1970
GHEEN, W. LLOYD	1970
GIACHINO, JOSEPH W.	1949
GIFFORD, KENNETH K.	1970
GILBERT, HAROLD G.	1955
GINTHER, RICHARD E.	1964
GLISMANN, LEONARD W.	1967
GLOGOVSKY, RONALD J.	1970
GOLOMB, ARTHUR E.	1962
GRAHAM, GREGORY S.	1971
GRIFFIN, JAMES F.	1970
GRIFFIN, RAYMOND V.	1965
GROVER, JERRY D.	1968
GUNTHER, THERESA C.	1931
GYSLER, RANDOLPH L.	1971
HAHN, BRUCE J.	1953
HAIGWOOD, THOMAS L.	1959
HALL, JAMES R.	1970
HAMMER, GERALD K.	1962
HAMPTON JR, ISAAC P.	1959
HANKAMMER, OTTO A.	1936
HANKS, WILLIAM S.	1966
HANSEN, RUSSELL G.	1964
HANSON, ROBERT R.	1970
HARDER, JACOB D.	1970
HARLAN, OWEN	1953
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HASTINGS, JAMES R.	1953
HAUENSTEIN, ALBERT D	1966
HAWKINS, LESLIE V.	1953
HAWLK, ROBERT H.	1960
HAWSE, JOHN E.	1964
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HELTON, H. L.	1958
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HILTON, RUSS C.	1970
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HOENES, RONALD L.	1970
HOFER, ARMAND G.	1963
HOLLINSHEAD, MERRILL	1952
HOOTS JR, WILLIAM R.	1966
HORBAKE, R. LEE	1942
HORNBLAKE, R. LEE	1939
HUGHES, WAYNE P.	1942
HUKILL, VIRON N.	1958
HUMBERT 3, JOHN J.	1967
HUXOL, ROBERT L.	1954
HYDER, CARROLL R.	1971
ILOTT, JOHN F. D.	19
INABA, LAWRENCE A.	1970
INGRAM, FRANKLIN C.	1966
INGRAM, MAURICE D.	1971
IRGANG, FRANK J.	1956
JACKMAN, DUANE A.	1961
JACKSON, PETER A.	1965
JACOBSEN, JAMES H.	1964
JAGEMAN, LARRY W.	1968
JENNINGS, GERALD L.	1968
JOHNSON, DELTON L.	1968
JOHNSON, RAYMOND C.	1971
JOHNSON, RUFUS G.	1949
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JOLLY, FRANK H.	1970
JONES, GUY R.	1971
KABAKJIAN, EDWARD	1969
KACHEL, STANLEY	1967
KAGY, FREDERICK D.	1959
KEENER, CLYDE	1959
KEIM, WILLIAM E.	1966
KETCHAM, GEORGE W.	1963
KICKLIGHTER, CLOIS E	1966
KIRBY, JACK	1965
KIRKWOOD, JAMES J.	1970
KIST, KEVIN W.	1970
KLEINTJES, PAUL L.	1953
KOBLE, RONALD L.	1963
KOONCE, TOMMY R.	1968
KREMPA, JOHN S.	1966
KURTH, EDWIN L.	1955
KUWIK, PAUL D.	1970
LANDERS, FREDERICK W	1937
LARSON, DELMAR L.	1964
LARSON, IRVING W.	1969
LENTO, ROBERT	1971
LINDBECK, JOHN R.	1958
LJOSTAD, RODNEY A.	1965
LOATS, HENRY A.	1950
LONDON, HOYT H.	1934
LOW, FRED G.	1963
LUCE, LAWRENCE W.	1957
LUCK, WILLIAM E.	1965
LUCY, JOHN H.	1971
MAC LEAN JR, C. B.	1963
MAHONEY, JAMES H.	1956
MALEY, DONALD	1949
MANSFIELD, ROBERT T.	1959
MARCH, BRYCE D.	1961
MASON, EMMETT E.	1965
MASON, WILLIAM H.	1970
MASSEY, HAL	1965
MAYFIELD, WINIFRED A	1970
MC ARTHUR, ROSS J.	1955
MC CAIN, JERRY C.	1959
MC CLELLAN, LARRY D.	1971
MC KELL, WILLIAM E.	1970
MC LONEY WIRT L.	1965
MC ROBBIE, J. M.	1963
MEHALLIS, GEORGE	1963
MECSKY, PAUL R.	1967
MESSMAN, WARREN B.	1963
MEYER, HARVEY K.	1951
MEYER, JOHN M.	1969
MICHEELS, WILLIAM J.	1941
MILLER, DUDLEY B.	1965
MILLER, JAMES A.	1971
MILLER, LARRY R.	1971
MILLER, MURRAY L.	1947
MILLER, WILBUR R.	1960
MITCHELL, JOHN	1954
MOHEE, N. F.	1968
MONGERSON, MARTIN D.	1968
MONROE, H. B.	1960
MOONEY, JAMES J.	1967
MORELAND JR, HENRY C	1970
MORELAND JR, HENRY C	1970
MORGAN, J. B.	1961
MOSLEY, SAMUEL N.	1970
NAIR, RALPH K.	1950
NAROFF, ARNOLD	1971
NELSON, A. FRANK	1955
NELSON, HOWARD F.	1953
NELSON, REX A.	1963
NEVITT, THOMAS A.	1966
NICHOLS, DWIGHT W.	1955
NIELSEN, ARNOLD M.	1970
O DELL, ROBERT D.	1963
O NEILL, JOHN N.	1971
OAKLEY, GARY D.	1970
OLSEN, FRED A.	1962
OLSON, DELMAR W.	1957
OLSON, JERRY C.	1964
PAGE, CHARLES B.	1953
PALMER, HAROLD G.	1950
PARDINI, LOUIS J.	1967
PASTER, JULIUS	1959
PATE JR, DOVE H.	1970
PAULIN, HENRY S.	1964
PAWELEK, STANLEY J.	1941

PEITHMAN, ROSCOE E.	1955
PENDERED, NORMAN C.	1951
PENNY, FOREST L.	1960
PERSHERN, FRANK R.	1967
PERSHING, REX W.	1970
PHARES, GAIL J.	1962
PHILLIPS, AUGUSTUS C	1941
PIERSALL, ARNOLD C.	1964
POLESZAK, LEONARD J.	19
PORTER, SAM R.	1962
POWERS, G. PAT	1961
PROCTOR, BERNARD S.	1950
QUICK, OTHO J.	1954
REAMS, JAKE W.	1963
REED, HOWARD U.	1948
REPP, VICTOR E.	1970
RESSLER, RALPH	1966
RICHARDS, JOHN V.	1970
RISHER, CHARLES G.	1953
ROBERTS, NORMAN N.	1967
ROBINSON, FRANK E.	1955
ROSS, B. JOHN	1971
ROSS, RAYMOND J.	1966
ROY, WENDELL L.	1963
RUDISILL, ALVIN E.	1969
RUNNALLS, JAMES J.	1965
RUSSELL, ELLSWORTH M	1950
RUSSELL, GENE H.	1970
RUSSELL, LESTER F.	1968
SALMON, DANIEL A.	1965
SARGENT, WILLIAM T.	1956
SAYOVITZ, JOSEPH J.	1955
SCHANK, KENNETH L.	1965
SCHERER, HARLAN L.	1960
SCHMIDT, HOWARD R.	1971
SCHMITT, MARSHALL L.	1953
SCHORLING, HORACE O.	1950
SCOBEY, MARY-MARGARE	
SECHREST, CHARLES H.	1953
SECKENDORF, ROBERT S	1960
SEDGWICK, LORRY K.	1965
SEEFIELD, KERMIT A.	1949
SELLON, WILLIAM A.	1950
SHACKELFORD, RICHARD	
SHEFFIELD, EVERETT A	1969
SHEMICK, JOHN M.	1960
SHOEMAKER, CHARLES E	1961
SHULL, HOWARD I.	1969
SILVIUS, HAROLD G.	1946
SIMICH, JACK	1965
SIRO, EINAR E.	1949
SLACK, NEILL C.	1963
SMALLEY, LEE H.	1962
SMITH, IRVING G.	1969
SMITH, JAMES A.	1957
SOURS, CHARLES F.	1969
SQUIBB, ALBERT R.	1967
SREDL, HENRY J.	1964
STANGL, OTTO A.	1968
STEEB, RALPH V.	1959
STEGEMAN, ARTHUR L.	1957
STEPHENSON, LESLIE E	1958
STEVENSON, JAMES E.	1953
STOMBAUGH, RAY M.	1936
STONER, WILLIAM D.	1940
STRICKLAND, THOMAS W	1959
STUART, CHIPMAN G.	1968
STUTEVILLE, CLAUDE E	1971
SVENDSEN, CLARENCE R	1970
SVENDSEN, ETHAN A.	1961
SWANSON, WENDELL L.	1964
TALKINGTON, JOE E.	1962
TAXIS, DAVID O.	1962
THIEL, DONALD W.	1959
THIEME, EBERHARD	1965
THOMAS, CHARLES L.	1964
THOMAS, JOSEPH K.	1957
THOMAS, KENNETH R.	1967
THOMAS, MAURICE G.	1968
THORP, JOHN H.	1945
THROWER, ROBERT G.	1961
TORRES, LEONARD	1963
TSUJI, THOMAS T.	1967
TUCKER, CASEY A.	1965
UNDERHILL, CHARLES M	1968
VACEK, WILLIAM L.	1962
VAN DYKE, ARVID W.	1970
VAUGHN, MAURICE S.	1967
WAHTERA, KAUKO A.	1965
WAISNER, GARY L.	1970
WALLS, W. DALE	1964
WARGO, WILLIAM D.	1968
WARNER, RICHARD A.	1969
WARRICK, GLENN D.	19
WEBER, EARL M.	1961
WEIR, ELDON L.	1970
WENIG, ROBERT E.	1970
WHITESEL, JOHN A.	1940
WIGEN, RAY A.	1957
WILLIAMS III, WALTER	1963
WILMOTT, JOHN N.	1941
WINTERS, KENNETH W.	1970
WOCKENFUSS, WILLIAM	1960
WOLANSKY, WILLIAM D.	1968
WOLFF, JAMES M.	1970
WOMMACK, CHARLES H.	1967
WOODY JR, EARL T.	1963
WORTHINGTON, KENT L.	1967
WRIGHT, WELCOME E.	1953
YOUNG, TALMAGE B.	1953
ZOPPETTI, MATTHEW	1970

I.E. - INDUSTRIAL EDUCATION

AUTHOR	DATE
ALLEN, DAVID	1962
ALLEN, WILSON S.	1936
ANDERSON, LOWELL D.	1969
ANDREWS JR, JOE R.	1968
ANDREWS, EARL R.	1968
ASHBROOK, WILLIAM D.	1944
ASHLEY, LAWRENCE F.	1936
AUSTIN, ROBERT T.	1964
BAILY, ATHOL R.	1949
BARANYAI, WILLIAM A.	1955
BARROWS, FRANK B.	1970
BATESON, ROBERT E.	1951
BAUGRUD, KIM J.	19
BEACH, ROBERT B.	1967
BEATTY, CHARLES J.	1967
BECK, RICHARD W.	1971
BEED, GALER W.	1970
BENSON, WILLARD A.	1959
BIBB, HERMAN L.	1952
BIRNBACH, SIDNEY B.	1948
BOAZ, HOLLAND E.	1965
BOWDOIN, PAUL	1966
BRANDON, GEORGE L.	1952
BROOKING, WALTER J.	1948
BROPHY, JOHN M.	1947
CLENDENNING, LEE R.	1972
COLLINS, SAMUEL R.	1962
CRAIG JR, WILLIAM L.	1970
CRAWFORD, HAROLD W.	1960
CRESSMAN, PAUL L.	1934
DALTON, FRANCIS W.	1937
DALTON, FRANCIS W.	1937
DANIELS, BLAIR E.	1937
DAVISON, HAROLD J.	1931
DEVLIN, LEON G.	1971
DIEDRICK, WALTER E.	1971
DITZLER, WALTER E.	1953
DOANE, RAYMOND C.	1956
DRENNAN, JERRY D.	1970
DRENNAN, JERRY D.	1970
EDMUNDS, NIEL A.	1969
ELLIOTT, CHARLES A.	1958
ENCK, HENRY S.	1970
ENGLISH, ROBERT W.	1950
ENVICK, ROBERT M.	1970
FARABAUGH, MARTIN P.	1966
FEE, EDWARD M.	1938
FIKE, IRIS L.	1956
FOWLER, RICHARD J.	1965

FREDERICK, LAWRENCE	1955
FRITZ, ROBERT C.	1960
FRYKLUND, VERNE C.	1933
FUZAK, JOHN A.	1948
GAILEY, DAVID S.	1969
GENEVRO, GEORGE W.	1966
GERBRACHT, CARLTON J	1949
GILLILAND, HUGH R.	1967
GILMAN, ROBERT A.	1969
GRAMBERG, MERLYN L.	1971
GREER, JOHN S.	1967
HACKETT, DONALD F.	1953
HALL, CLYDE W.	1953
HAMILTON, ALLEN T.	1941
HAMMER, GARLAND G.	1951
HAMMOND, ROBERT G.	1956
HANKAMMER, OTTO A.	1936
HANSEN, RICHARD H.	1967
HANSSON, KENNETH S.	1966
HARRISON, ELTON C.	1948
HARRISON, OVAL S.	1940
HILL, CHARLES R.	1950
HOERNER, JAMES L.	1969
HOMISAK, WILLIAM	1970
HOSTETLER, IVAN	1945
HOUSKA, JOSEPH T.	1971
HUNTINGTON, HAROLD A	1940
JAHRMAN, QUAIN K.	1964
JOCHEN, ALBERT E.	1947
KARNES, JOHN W.	1951
KARNES, M. RAY	1948
KARR, DONALD L.	1969
KEIL, RAYMOND L.	1966
KELLY, WILLIAM T.	1966
KENNEKE, LARRY J.	1968
KICKLIGHTER, CLOIS E	1966
KING, THOMAS G.	1958
KOHLER, RODERICK G.	1952
KOO, PO-YEN	1968
KRAUSE, ROY W.	1970
KREMPA, JOHN S.	1966
KRUMBIEGEL, WALTER O	1955
LANDIS, RUSSELL H.	1940
LAPIDUS, GEORGE	1954
LARSON, CURTIS G.	1971
LARSON, RAYMOND H.	1951
LAUDA, DONALD P.	1966
LAWS, NORMAN G.	1966
LESTER, SEELIG L.	1944
LINDAHL, LAWRENCE G.	1944
LINDAU, ORA F.	1968
LUCE, LAWRENCE W.	1957
LYBARGER, ALVIN E.	
MALLARY, BENJAMIN E.	1932
MANCHAK, PAUL J.	1965
MATTSON, HOMER A.	1970
MAUER, DONALD E.	1966
MAXCY, ELLIS O.	1941
MC ELHENY, JOHN R.	1960
MC KEE, RONALD R.	1971
MILLER, THOMAS W.	1958
MILLS, EARL S.	1971
MINTON, GENE D.	1968
MOELLER, CARL A.	1961
NEE, NELSEN V.	1971
NELSON, HILDING E.	1962
NIELSEN, ERWIN E.	1969
NOVOSAD, JOHN P.	1971
OAKS, MERRILL M.	1970
PARKES, GEORGE H.	1939
PARKS, GERALD A.	1969
PETERS, DONALD F.	1959
PFAHL, ALVIN K.	1970
PINCKNEY, CHARLES W.	1953
RALSTROM, STIG E.	1969
RANDLEMAN, ROBERT R.	1961
RECKERD, THOMAS E.	1970
REED, WILLIAM T.	1947
RESNICK, HAROLD S.	1970
ROBINSON, WALTER J.	1950
ROWNTREE, URWIN	1951
RUMPF, EDWIN L.	1954

SANDERS, LESTER E.	1967
SCHULER, CHARLES A.	1966
SCOTT, CHARLES P.	1943
SEIDEL, JOHN J.	1951
SENTENEY, GEORGE W.	1955
SHOEMAKER, BYRL R.	1957
SINGLETARY, THOMAS A	1968
SIRO, EINAR E.	1949
SLACK, NEILL C.	1963
SLATTER, JOHN B.	1970
SOMMERFELD, DONALD A	1969
SPINTI, ROBERT J.	
STADT, RONALD W.	1962
STEPHENS, ROBERT L.	1969
STERN, JACOB	1964
STONE, THOMAS C.	1969
STRONG, MERLE E.	1958
STRUCK, JOHN W.	1956
SWANSON, WENDELL L.	1964
SWERDLOW, ROBERT M.	1969
TAYLOR JR, HOUSTON	1968
THOMAS, ALVIN I.	1957
TILLEY, TRUMAN E.	1945
TURNER, BRIDGES A.	1941
WALLIS, CARL R.	1969
WALL, GUSTAVE S.	1951
WASHBURN, CLYDE I.	1969
WATKINS, KENNETH E.	1966
WERNER, WAYNE E.	1969
WHATLEY, ALICE E.	1967
WHITE, ALVIN M.	1958
WISEMAN, EMORY E.	1969
WOLANSKY, WILLIAM D.	1968
WOLLINGTON, JAMES M.	1966
WORTHINGTON, KENT L.	1967
YOHO, LEWIS W.	1959
YOUNG, ROBERT W.	1966
ZABCIK, CALVIN L.	1969
ZANKOWICH, PAUL	1956
ZULLINGER, JOHN	1966

IND. - INDUSTRY

AUTHOR	DATE
ADAMS, AARON F.	1961
ANDERSON, RICHARD B.	1970
ANDERWALD, CARL J.	1947
ATTEBERRY, PAT H.	1954
BADER, LOIS	1932
BAILY, ATHOL R.	1949
BAKER, ALFRED E.	1943
BARNETT, LEONARD J.	1969
BENJAMIN, NEAL B.	1969
BLOMGREN, ROGER D.	1962
BRASTED, F. KENNETH	1953
BRITT, ROBERT D.	1966
BROEMAER, GARY M.	1968
BROPHY, JOHN M.	1947
BROWN, GEORGE J.	1960
BROWN, WALTER C.	1954
CAMPBELL, CLIFTON P.	1971
CANTOR, ROBERT L.	1952
CASSIMATIS, PETER J.	1967
COATES, NORMAN	1967
COCHRAN, GEORGE C.	1967
COLLONS, ROUGER D.	1967
COX, ROBERT L.	1970
CRUDDEN, PAUL B.	1944
CUTLER, THEODORE H.	1945
DANAHER, EUGENE I.	1946
DANNENBERG, RAYMOND	1965
DEAN, ERNEST D.	1968
DIRKSON, RALPH E.	1969
EDWARDS, JOHN T.	1970
ESTLE, EDWIN F.	1966
EVANCHO, MICHAEL	1947
EVANS, RUPERT N.	1950
FAULDS, VINCENT R.	1956
FAZZINI, PHILLIP A.	1970

FLAHERTY, HUGH	1944
FOSTER, HOWARD G.	1969
FRISBY, RUSSELL C.	1968
FRYKLUND, VERNE C.	1933
FUGAL, GLEN R.	1950
FURIA, JOHN J.	1930
GAILEY, DAVID S.	1969
GAINES, THOMAS R.	1955
GERBER, RUSSELL L.	1966
GISRIEL, AUSTIN E.	1959
GLEASON, WILLIAM E.	1967
GLOGOVSKY, RONALD J.	1970
GOETZ, ROBERT E.	1958
GOLD, CLARENCE H.	1967
GOSSAGE, LOYCE C.	1967
GRANNIS, GARY E.	1970
HAGEMEYER, RICHARD H	1960
HAGGLUND, GEORGE S.	1966
HALL, RONALD W.	1970
HANEY, PHILIP H.	1949
HARVEY, EDWARD B.	1967
HAUGO, RICHARD R.	1969
HERRICK, IRVING W.	1969
HOOVER, ROGER L.	1967
HOROWITZ, IRVING L.	1939
IACOBELLI, JOHN L.	1969
ISOM, VERNON H.	1970
JELDEN, DAVID L.	1960
JENKINS, REESE V.	1966
KAFFER, FRED C.	1941
KAISER, HAROLD F.	1968
KAISER, HENRY	1968
KAPLAN, HAROLD	1956
KAVIEFF, MELVIN C.	1961
KICKLIGHTER, CLUIS E	1966
KURIEN, CHEMPALATHAR	1967
LAND, SAMUEL L.	1931
LANMAN, RICHARD W.	1953
LARSON, DELMAR L.	1964
LAWS, NORMAN G.	1966
LEFFARD, WARREN L.	1968
LEWIS, MYRON E.	1970
LINE, JOHN D.	1971
LITTLE, RICHARD L.	1968
LOVELESS JR, SIDNEY	1969
LUDINGTON, JOHN R.	1940
MAC DONALD, MANLEY E	1944
MANGANELLI, FRED D.	1959
MANSFIELD, WESLEY B.	1970
MAXCY, ELLIS O.	1941
MC CLARY, RAY H.	1967
MELINE, CHARLES W.	1965
MELLMAN, ROBERT A.	1957
METZLER, JOHN H.	1970
MEYERS, ALBERT	1967
MONTELLO, PAUL A.	1968
MOON, DONALD E.	1968
MOULLETTE, JOHN B.	1970
NEUBAUER, GERHARDT W	1956
O NEILL, JACK H.	1954
PARDINI, LOUIS J.	1967
PARKS, GERALD A.	1969
PARNES, SIDNEY J.	1954
PAULIN, HENRY S.	1964
PAYNE, AM V.	1965
PEDERSEN, GEORGE L.	1957
PHARES, GAIL J.	1962
POLOMSKY, JOHN V.	1969
PORTER, SAM R.	1962
RANDEL, STEPHEN V.	1957
RECKERD, THOMAS E.	1970
RIETH, CLAUDE E.	1966
ROBINSON, CLARK N.	1947
ROSENQUIST, BARBARA	1971
SALMON, DANIEL A.	1965
SANDBERG, NINA M.	1968
SANDERS, LEROY J.	1967
SCHENCK, JOHN P.	1969
SCHMITT, VICTOR A.	1953
SCHOEPPLER, JACOB	1958
SEAMAN, DON F.	1968
SHARMA, BALDEV R.	1967
SHEFFIECK JR, CHARLE	1969
SHOEMAKER, CHARLES F	1961
SHRADER, ROBERT F.	1967
SONNY, JACOB	1971
SORENSEN, RONALD L.	1964
SPEER, HUGH W.	1950
STAMM, HAROLD S.	1968
STANGLE, PAUL L.	1967
STEGEMAN, ARTHUR L.	1957
STELZNER, RAYMOND R.	1969
STERN, JACOB	1964
STEWART, WILLIAM J.	1968
STROM, IRVING E.	1970
STUART, IRVING R.	1951
THORNTON, ROBERT W.	1971
TIERNEY, WILLIAM F.	1952
TREGILGUS, EARL P.	1954
TUTTLE, CHESTER D.	1965
VASEK, RICHARD J.	1967
WALL, GUSTAVE S.	1951
WATERSTREET, DONALD	1969
WEEDE, GARY D.	1967
WHEELER, EDWARD A.	1965
WHITE, LELAND W.	1966
WHITE, STROLLER T.	1967
WINDLE, JIM L.	1968
WOLD, KENNETH M.	1961
WOODRUFF, JAMES N.	1971
YOUMANS, CHARLES V.	1955
ZIEL, HENRY R.	1961
ZOOK, WAYNE H.	1968
ZOPPETTI, MATTHEW	1970
ZUDAK, LAWRENCE S.	1969

ININ - INDIVIDUALIZED INSTRUCTION

AUTHOR	DATE
ABITIA, FREDDIE	1971
AMELON, DONALD J.	1969
ARMSTRONG, WILLIAM H	1967
BALL, CHIALES E.	1958
BJORNERUD, JAMES A.	1970
BROWN III, ALPHA O.	1971
COZZENS, CHARLES R.	1965
CRAFT, CLYDE O.	1967
FINCH, CURTIS R.	1969
FLUG, EUGENE R.	1967
FRANCIS, GEORGE H.	1966
FRESCHET, FERUCIO	1969
FUGAL, GLEN R.	1950
GALLINELLI, JOHN W.	1970
HARDER, JACOB D.	1970
HARDING, LARRY G.	1971
HEYEL, CLARENCE L.	1967
HILL, EDWIN K.	1968
HOFER, ARMAND G.	1963
HOUSEHOLDER, DANIEL	1963
ILOTT, JOHN F. D.	19
JELDEN, DAVID L.	1971
JOHNSON, DOUGLAS H.	1969
KASSAY, JOHN A.	1970
KOBLE, RONALD L.	1963
LUCK, WILLIAM E.	1966
MC EOWEN, ROBERT H.	1967
MC MURRY, JAMES G.	1964
MEIERHENRY, WESLEY C	1946
NORTON, ROBERT E.	1967
PRICE, CARROLL S.	1968
RUGGLES, STANFORD D.	1969
SIMICH, JACK	1965
SMITH, DARRELL L.	1969
TURNER, MERVYN L.	1968
VANN, LOWELL C.	1970

INPG - INNOVATIVE PROGRAMS

AUTHOR	DATE
BERGSTROM, PHILIP G.	1970
BLANTON, LLOYD H.	1970
BLOMGREN, ROGER D.	1962
BRO, RONALD D.	1971
BRUECKMAN JR, JOHN C	1969
COCHRAN, LESLIE H.	1968
DUGGER, WILLIAM E.	1970
FRYE, BILL J.	1971
GETTLE, KARL E.	1970
GRUMBLING, HENRY M.	1968
HYDER, CARROLL R.	1971
KLEIMAN, HERBERT S.	1966
KUWIK, PAUL D.	1970
LJOSTAD, RODNEY A.	1965
MASON, EMMETT E.	1969
MC KEE, RONALD R.	1971
MILLER, LARRY R.	1971
MILLER, MURRAY L.	1947
MONGERSON, MARTIN D.	1968
OGUNNIYI, OMOTOSHO	1969
PETER, RICHARD F.	1970
PHALLEN, CHARLES W.	1958
PRICE, CARROLL S.	1968
RESNICK, HAROLD S.	1970
ROSSER, ARTHUR J.	1968
RUSSELL, GENE H.	1970
VANN, LOWELL C.	1970
WENIG, ROBERT E.	1970
WEST, WILLIAM E.	1969
WEST, WILLIAM E.	1969
WOCKENFUSS, WILLIAM	1960
YOUNG, DARIUS R.	1968

INSD - INSTRUCTIONAL DEVICES

AUTHOR	DATE
AGUIRRE, EDWARD	1966
BARON, ANDREW W.	1968
BENSEN, JAMES M.	1967
BIGGAM, WILLIAM R.	1958
BROADHURST, FREDERIC	1969
BROWN, ALPHA O.	1971
CORNWELL, RAYMOND L.	1961
CRAFT, CLYDE O.	1967
DENNISON, BOBBY	1970
FOWLER, EWELL W.	1949
FRYE, BILL J.	1971
GRUNWALD, WALTER	1968
HARDING, LARRY G.	1971
HATLEY, JIMMY D.	1969
HERR, JAMES F.	1970
HERR, JAMES F.	19
HOERNER, JAMES L.	1969
HORBAKE, R. LEE	1942
KING, FRANKLIN J.	1970
LEMASTER, LELAN K.	1961
LICHTBLAU, LEONARD R	1958
LONDON, HOYT H.	1934
MOEGENBURG, LOUIS A.	1969
NICKERSON, PAUL S.	1947
NISH, DALE L.	1967
OAKLEY, GARY D.	1970
OGUNNIYI, OMOTOSHO	1969
PHILLIPS, JOSEPH W.	1935
ROSSER, ARTHUR J.	1968
ROSS, B. JOHN	1971
ROUTH, JERRY D.	1970
RUEHL, PHILIP W.	1961
SCHOESLER, RONALD D.	1971
SERGEANT, HAROLD A.	1968
SMITH, EARL J.	1968
STEELE, GERALD L.	1967
SULLIVAN, JAMES A.	1967
SWERDLOW, ROBERT M.	1969
VANN, LOWELL C.	1970
WILLS, VERNON L.	1965
WRIGHT, WELCOME E.	1953
YEE, JOOST	1965

INSR - IN-SERVICE EDUCATION

AUTHOR	DATE
ADAMS, AARON F.	1961
ARNOLD, DANIEL S.	1968
ARONSON, NORMA	1967
BAILEY, DONALD A.	1970
CAMERON, WALTER A.	1969
CHAMBLISS, KINNETH M	1966
COCHRAN, GEORGE C.	1967
CONROY JR, WILLIAM G	1969
CROUCH, J. PAGE	1968
CUTLER, THEODORE H.	1948
DIRKSON, RALPH E.	1969
DOWNING, DALLAS L.	1941
DROST, JIM L.	1970
ESTLE, EDWIN F.	1966
FURIA, JOHN J.	1930
HARDER, JACOB D.	1970
HASTINGS, JAMES R.	1953
HOLMEN, HOLGER E.	19
HYDER, CARROLL R.	1971
KIRBY, JACK	1965
KLABENES, ROBERT E.	1971
KRUGER, JOHN M.	1971
LINE, JOHN D.	1971
LOEPP, FRANZIE L.	1970
O TUEL, MAXCY B.	1969
PAWELEK, ALAN R.	1950
POWER, ANDREW T.	1955
RAU, GERALD N.	1971
ROSENQUIST, BARBARA	1971
SCHMITT, VICTOR A.	1953
SIRO, EINAR E.	1949
SLATTER, JOHN B.	1970
SMITH, BRANDON B.	1968
SUTTON, FRED C.	1961
VERMEULEN, ROBERT	1968
WALLS, W. DALE	1964
WHEELER, EDWARD A.	1965
WILSON, ROGER J.	1970

INSM - INSTRUCTIONAL MATERIALS

AUTHOR	DATE
BALL, CHIALES E.	1958
BEATTY, CHARLES J.	1967
BIGGAM, WILLIAM R.	1958
BROWN III, ALPHA O.	1971
BROWN, ALPHA O.	1971
DANNENBERG, RAYMOND	1965
DENNISON, BOBBY	1970
DUFFY, JOSEPH W.	1958
DUTTON, BERNARD	1966
EDDY, EVAN M.	1956
ELLIOTT, CHARLES A.	1958
EPPLER, THOMAS L.	1969
FERNS, GEORGE W.	1962
FINKELSTEIN, ABRAHAM	1959
FOWLER, EWELL W.	1949
HAILES, CHARLES W.	1971
HANCOX, FREDERICK J.	1969
HICKMAN, KEITH F.	1967
HUTCHERSON, ETHEL M.	1966
JASNOSZ, THOMAS A.	1969
JELDEN, DAVID L.	1960
JOHNSON, DELTON L.	1968
JONES, GARY H.	1969
KAPLAN, WILLIAM A.	1970
KING, THOMAS G.	1958
KLEINBACH, MERLIN H.	1959
KOONCE, TOMMY R.	1968
LICHTBLAU, LEONARD R	1958
LONDON, HOYT H.	1934
MAHONEY, JAMES H.	1956
MC CAIN, JERRY C.	1959
MC KEE, RONALD R.	1971
MILLER, WILBUR R.	1960
MUNS III, NEDOM C.	1969
O NEILL, JOHN N.	1971
OXLEY, VINCENT E.	1969

PAYNE, AM V.	1965
PORTER, HAROLD W.	1948
PREITZ, CLARENCE H.	1969
PUCEL, DAVID J.	1966
PUFAHL, VIRGIL R.	1969
REED, RICHARD L.	1971
REESER, GEORGE W.	1971
RICE, CHARLES M. M.	1958
ROBERTS, LAURENCE A.	1968
ROUTH, JERRY D.	1970
ROWEN, MILTON S.	1969
RUEHL, PHILIP W.	1961
RUTEN, WILLIAM H.	1953
SCHANBACHER, EUGENE	1961
SCHOESLER, RONALD D.	1971
SCHOTT, WILLIAM J.	1954
SERGEANT, HAROLD A.	1968
SHOEMAKER, CHARLES E	1961
SMITH, EARL J.	1968
SMITH, JAMES A.	1957
STRONG, MERLE E.	1958
SWERDLOW, ROBERT M.	1969
TRAUTWEIN, CALVIN L.	1962
TURNER, MERVYN L.	1968
VANN, LOWELL C.	1970
VOGEL, RICHARD F.	1968
WAGNER, EDGAR S.	1960
WEST, WILLIAM E.	1969
WRIGHT, OSCAR W.	1954
YOUNG, TALMAGE B.	1953
YOUNG, WILLIAM H.	1969

I.T. - INDUSTRIAL TECHNOLOGY

AUTHOR	DATE
EDWARDS, JOHN T.	1970
GAILEY, DAVID S.	1969
HALL, RONALD W.	1970
HANSEN, MAX F.	1964
HARRIS, JAMES N.	1969
HAUGO, RICHARD R.	1969
KEIL, RAYMOND L.	1966
KEITH, CHARLES W.	1964
LEWIS, MYRON E.	1970
MOON, DONALD E.	1968
SHULL, HOWARD I.	1969
SIMONS, JEROLD J.	1967
STROM, IRVING F.	1970
STUESSY, EUGENE L.	1969
WEBER, EARL M.	1961
WINTERS, KENNETH W.	1970

JEWL - JEWELRY AND LAPIDARY

AUTHOR	DATE
EVANS, HARRY L.	1953
SOLIMAN, ABDEL RAZEK	1970

JRHS - JUNIOR HIGH SCHOOL

AUTHOR	DATE
BAILEY, GERALD D.	1964
BAILEY, MILTON J.	1968
BJORKQUIST, DAVID C.	1965
BLANKENBAKER, EDWIN	1970
BORRI, ROBERT	1942
BORTZ, RICHARD F.	1967
BUDKE, WESLEY E.	1970
BURROUGHS, MARVIN G.	1970
CHRISTIAN, JACK B.	1969
CLENDENNING, LEE R.	1972
COLLINS, CHARLES J.	1968
CONROY JR, WILLIAM G	1969

D AMBROSIO, VINCENT	1969
DAVIS, EDDIE M.	1971
DUENK, LESTER G.	1966
DUFFY, JOSEPH W.	1958
DUTT, KARL F.	1969
ERICKSON, JOHN H.	1953
FIKE, IRIS L.	1956
GETTLE, KARL E.	1970
HAIGWOOD, THOMAS L.	1959
HERRING, TOD H.	1962
KABAKJIAN, EDWARD	1969
KEENER, CLYDE	1959
KRUGER, JOHN M.	1971
LE BLANC, DARRELL R.	1971
LICHTBLAU, LEONARD R	1958
LOEPP, FRANZIE L.	1970
LOEPP, FRANZIE L.	1970
MARCH, BRYCE D.	1961
MAYS, WILLIAM A.	1954
MC KELL, WILLIAM E.	1970
MC MURRY, JAMES G.	1964
MENEGAT, PAUL A.	1953
MIDDLETON, WILLIAM H	1962
MILLER, DUDLEY B.	1965
MILLER, JOHN G.	1954
MILLER, WILBUR R.	1960
MORGAN SR, LEO D.	1966
MOSLEY, SAMUEL N.	1970
NICHOLS, DWIGHT W.	1955
NIELSEN, ARNOLD M.	1970
PALOW, WILLIAM P.	1969
PANKOWSKI, DALLAS J.	1966
PASTER, JULIUS	1959
PENDERED, NORMAN C.	1951
PETER, RICHARD F.	1970
REMICK, EDWARD L.	
ROLLINGS, JAMES W.	1967
ROY, WENDELL L.	1963
RUGGLES, STANFORD D.	1969
SIMICH, JACK	1965
SPENCE, WILLIAM P.	1957
THOMPSON, ROBERT L.	1947
VAN TASSEL, RAYMOND	1948
VOELKNER, ALVIN R.	1970
VOGEL, RICHARD F.	1968
WARNER, RICHARD A.	1969
WENTZ, CHARLES H.	1969
WEST, WILLIAM E.	1969
YOUNG, DARIUS R.	1968

JUCO - JUNIOR COLLEGE

AUTHOR	DATE
ADAMS, DEWEY A.	1966
AGNOR, HERBERT E.	1970
ANDERSON, ERNEST F.	1966
ANDREYKA, ROBERT E.	1969
ASHCRAFT, NORMAN C.	1968
BARICH, DEWEY F.	1961
BASSERI, JAMSHID	1970
BAS, RADHA C.	1950
BECKER JR, CHARLES W	1967
BOLICK, GERALD M.	1968
BOSS, RICHARD D.	1968
BRADLEY, HARRY L.	1967
BRENCKLE, AUTHUR G.	1968
BROOKING, WALTER J.	1948
BROWN, MARILYN K.	1970
BRUE, JAMES E.	1969
BURKERT, WILLIAM G.	1970
CANDOLI, I. C.	1967
CARLSON, HENRY L.	1967
CLECKLER, JAMES D.	1969
COMBS, STANLEY L.	1948
COMBS, STANLEY L.	1948
DAUGHERTY, RONALD D.	1971
DAVID, WILLIAM J.	1968
DIRKSEN, DENNIS A.	1969

DONADIO, BLASE	1969
DUGGER, CECIL W.	1968
ELLINGTON, MARK	1936
FENDLASON, DONALD W.	1969
FOLEY JR, JOHN P.	1968
FRAGALE, MARVIN J.	1969
GEARING, PHILLIP	1970
HAGEN, DONALD L.	1972
HAKANSON, JOHN W.	1967
HARRIS, JAMES G.	1970
HAYES, BILLY D.	1968
HEIBERG, DONALD H.	1969
HOMISAK, WILLIAM	1970
HUSUNG, WILLIAM T.	1970
JENKINS, NORMAN L.	1969
JOHNSON, ELOUISE E.	1967
JOHNSTON, GARVIN H.	1968
KAHRMANN, ROBERT G.	1970
KEIM, LAWRENCE	1966
KEPLER, ATLEE C.	1968
KLABENES, ROBERT E.	1971
KOHN, DIXIE A.	1967
KOLLIN, ROBERT	1971
LANGFORD, AL G.	1969
LARSON, MILTON E.	1965
LATHROP, ROBERT C.	1969
LIEN, DAVID A.	1971
LINDAHL, DONALD G.	1971
LINKSZ, JAMES J.	1971
MALIK, JOSEPH A.	1968
MARCINOWSKI, MARY E.	1971
MC INNIS, DONALD W.	1971
MC PHERSON, DANIEL W	1971
MEYERS, LARRY D.	1968
MILLER, MARK E.	1967
MORGAN JR, ALFRED D.	1967
MORGAN, JIMMY B.	1969
MORRISON, JESSIE S.	1969
NEASHAM, ERNEST R.	1968
NEUFELD, JACOB A.	1968
NORTON, ELIZABETH N.	1970
O DELL, ROBERT D.	1963
OLSON, HERBERT A.	1970
OMAN, RONALD N.	1971
PARRY, ERNEST B.	1968
PEERSON, RICHARD H.	1969
PRATT, ARDEN L.	1968
PRICE, CARROLL S.	1968
ROBERTSON, LYLE R.	1968
SADA, PABLO M.	1971
SCHOLES, CHARLES E.	1968
SCHRAMM, DWAYNE G.	1969
SELMAN, JAMES W.	1967
SHAW, GERALD H.	1968
SMITH, ROYAL E.	1969
STANTON, WILLIAM A.	1967
STAPLES, JAMES R.	1970
STILLERMAN, MANUEL	1970
STOKES, VERNON L.	1971
STROUT, GEORGE M.	1970
TATSCH, CLINTON E.	1970
THOMAS JR, WADE F.	1957
TOLLEY, CHARLES H.	1969
TUTHILL, RUSSELL	1970
VALENTINE, IVAN E.	1969
VOLPE, GERALD	1969
WAKITA, OSAMU A.	1970
WALSTON, HARRY W.	1970
WANGER, RUTH	1971
WASHBURN, KENNETH R.	1971
WHINFIELD, RICHARD W	1969
WHITNEY, LARRY J.	1967
WIERSTEINER, SAMUEL	1970
WINEGAR, GARY H.	1969
WYNNE, ROBERT L.	1968
ZWEIBEL, MALCOLM C.	1968

KNOW - KNOWLEDGE

AUTHOR	DATE
BERGSTROM, PHILIP G.	1970
BLOMGREN, ROGER D.	1962
BURNS, WILLIAM E.	1965
COLEMAN, JAY M.	1971
CREMER, KENNETH D.	1970
DAINES, JAMES R.	1968
DE OLD, ALAN R.	1971
DEADY, JOHN J.	1970
DECKER, HOWARD S.	1953
DIRKSON, RALPH E.	1969
EDDY, EVAN M.	1956
EISS, ALBERT F.	1954
EPPLER, THOMAS L.	1969
EVEN, MARY J.	1971
FRAGALE, MARVIN J.	1969
GRIFFIN, RAYMOND V.	1965
GRIFFITH, JOHN L.	1967
HERRING, TOD H.	1962
HEYEL, CLARENCE L.	1967
HULL, THOMAS F.	1964
IRVINE, FLEET R.	1968
JACOBSEN, JAMES H.	1964
JELDEN, DAVID L.	1960
JENKINS JR, JAMES	1955
JOHNSON, WAYNE C.	1969
MARCH, BRYCE D.	1961
MAXON, LLOYD M.	1970
MILLER, LARRY R.	1971
MILLER, WILBUR R.	1960
MILLS, BOYD C.	1967
NEVITT, THOMAS A.	1966
NISH, DALE L.	1967
PALOW, WILLIAM P.	1969
ROTHMAN, ROBERT A.	1969
SCHACHT, ROBERT C.	1971
SCHMITT, MARSHALL L.	1953
SEIGLER, CLAUDE I.	1970
SHIGETOMI, SAMSON S.	1970
THOMPSON, ROBERT L.	1947
WAITKUS, LORIN V.	1971
WARREN, WILLIAM H.	1970
WILLEMS, ALVIN E.	1970
WYNN, PHILIP D.	1970
YEE, JOOST	1965

LABR - LABOR

AUTHOR	DATE
ARONSON, NORMA	1967
COATES, NORMAN	1967
DRENNAN, JERRY D.	1970
FINNEY JR, JOHN D.	1967
FLUCK, BRYAN V.	1970
FOSTER, HOWARD G.	1969
GARRETT, ARTHUR M.	1971
GORDON, LINDA	1971
HARVEY, EDWARD B.	1967
HOSTETLER, IVAN	1945
KARNES, M. RAY	1948
KLATT, LAWRENCE A.	1967
LAND, SAMUEL L.	1931
METZLER, JOHN H.	1970
ROBINSON, JAMES W.	1967
SMITH, KAY H.	1962
STUART, IRVING R.	1951
TEMPLETON, RONALD K.	1967
ZUDAK, LAWRENCE S.	1969

LAOR - LABORATORY ORGANIZATION

AUTHOR	DATE
ALLEN, WILLARD A.	1963
ASHCRAFT, NORMAN C.	1968
BATESON, WILLARD M.	1954
BESTOR, ROLLIE R.	1969
BOYER, CAROLINE K.	1966
CALEY, PAUL C.	1969
CZARNECKI, EDGAR R.	1967
ENGLISH, ROBERT W.	1950
FOWLER, RICHARD J.	1965
GRUMBLING, HENRY M.	1968
KLEHM, WALTER A.	1937
LE BLANC, DARRELL R.	1971
MITCHELL, JOHN	1954
MONTELLO, PAUL A.	1968
STEINGART, JACOB	1970
WORTHINGTON, KENT L.	1967

LEAD - LEADERSHIP

AUTHOR	DATE
ACHILLES, CHARLES M.	1967
BERGENGREN JR, ROY F	1953
CARLSON, HENRY L.	1967
CARLSON, HENRY L.	1967
FULLER, MARY M.	1970
HAMMER, GERALD K.	1962
HEGER, ROBERT J.	1968
HEILMAN, CASMER F.	1970
HEJKAL, OTTO C.	1950
HILL, RICHARD E.	1970
HORTON, GEORGE R.	1967
HOSLER, FRED W.	1938
HUNTINGTON, HAROLD A	1940
HUXOL, ROBERT L.	1954
JOHNSON, DELTON L.	1968
KACHEL, STANLEY	1967
LA BOUNTY JR, HUGH O	1961
LIEN, DAVID A.	1971
MINELLI, ERNEST L.	1957
MOULLETTE, JOHN B.	1970
VALENTINE, IVAN E.	1969
WARD, DARRELL L.	1971
WHITESEL, JOHN A.	1940
ZULLINGER, JOHN	1966

LEGI - LEGISLATION

AUTHOR	DATE
BASS, WILBUR A.	1967
GLAU, JON E.	1970
HANSEN, GARY B.	1971
KAVICH, LAWRENCE L.	1964
KING, HOMER P.	1934
KING, HOMER P.	1934
LOCKE, LEWIS A.	
MC CLELLAN, LARRY D.	1971
MILLER, L. PAUL	1939
MORGAN, JACK W.	1951
PRATT, ARDEN L.	1968
TEMPLETON, RONALD K.	1967
USDANE, WILLIAM M.	1955
VANDIVER, ROBERT E.	1968

LIAB - LIABILITY

AUTHOR	DATE
HUMBLE, MILFORD K.	1937
KIGIN, DENIS J.	1959
PINCKNEY, CHARLES W.	1953

LMNT - LAMINATING

AUTHOR	DATE
CAPRON, JOHN H.	1955
LENTO, ROBERT	1971

MAIN - MAINTENANCE

AUTHOR	DATE
BEDNAR, ERNEST G.	1955
EATON, MERRILL T.	1932
HOFER, JARREL	1969
MC ARTHUR, ROSS J.	1955
MC CLARY, RAY H.	1967
STEPHENS, ROBERT L.	1969
VANDEBERG, LOYD W.	1955

MANG - MANAGEMENT

AUTHOR	DATE
BAILY, ATHOL R.	1949
BASSERI, JAMSHID	1970
CASSIMATIS, PETER J.	1967
EDWARDS, JOHN T.	1970
EISENBERG, WILLIAM L	1947
EISS, ALBERT F.	1954
ELIAS, JOHN E.	1970
EOLTMAN, FELICIAN F.	1950
GOLD, CLARENCE H.	1967
HARVEY, EDWARD B.	1967
HOPPER, CHARLES H.	1971
HOSTETLER, IVAN	1945
KEIL, RAYMOND L.	1966
LARSON, DELMAR L.	1964
LEWIS, MYRON E.	1970
LONG, GILBERT A.	1970
MARSHALL, CHARLES R.	1971
MASON, EMMETT F.	1969
MC ARTHUR, ROSS J.	1955
MINELLI, ERNEST L.	1957
MOULLETTE, JOHN B.	1970
POLOMSKY, JOHN V.	1969
RIMLER, GEORGE W.	1969
SHAFER, CARL I.	1961
SHEFFIECK JR, CHARLE	1969
SVENDSEN, CLARENCE R	1970
VOELKNER, ALVIN R.	1970
ZIEL, HENRY R.	1961

MANU - MANUFACTURING

AUTHOR	DATE
BERRY, ARTHUR O.	1967
COATES, NORMAN	1967
DEAN, ERNEST D.	1968
DIRKSON, RALPH E.	1969
DUNLAP, EUGENE W.	1962
FALLS, JOHN E.	1968
GERBER, RUSSELL L.	1966
HALL, RONALD W.	1970
KAISER, HENRY	1968
KAPLAN, HAROLD	1956
KREIDER, LEONARD E.	1968
KURIEN, CHEMPALATHAR	1967
KUWIK, PAUL D.	1970
LEFFARD, WARREN L.	1968
MANSFIELD, WESLEY B.	1970
MASON, EMMETT F.	1969
MOON, DONALD E.	1968
SMALLEY, LEE H.	1962
STEINGART, JACOB	1970
TICHENOR, HAROLD D.	1967
TURNER, ROBERT E.	1957
YOUMANS, CHARLES V.	1955
ZOOK, WAYNE H.	1968

MATH - MATHEMATICS

AUTHOR	DATE
BOWMAN, JAMES E.	1958
GILLIE SR, ANGELO C.	1967
GUNDERSON, B. HARRY	1949
KOLLIN, ROBERT	1971
LAWS, NORMAN G.	1966
MARCINOWSKI, MARY E.	1971
NOLL, ROBERT F.	1967
PEEL, NANCY D.	1967
RONEY, MAURICE W.	1964
SHOEMAKER, BYRL R.	1957
SIMONS, JEROLD J.	1967
SLATTER, JOHN B.	1970
STALLINGS, DANIEL N.	1969
STUESSY, EUGENE L.	1969
WASHBURN, KENNETH R.	1971

MCTG - MICRO TEACHING

AUTHOR	DATE
HOERNER, JAMES L.	1969
THATCHER, GLENN M.	1970

MEDA - MEDIA

AUTHOR	DATE
ABRAMSON, BERNARD	1950
BABCOCK, JAMES G.	1969
BARON, ANDREW W.	1968
BENSEN, JAMES M.	1967
BROADHURST, FREDERIC	1969
BROOKS, WESTON T.	1964
BROWN, ALPHA O.	1971
CORNWELL, RAYMOND L.	1961
CROWDER, GENE A.	1968
DE OLD, ALAN R.	1971
DUTTON, BERNARD	1966
EPPLER, THOMAS L.	1969
FLEMING, BRUCE E.	1969
FLUG, EUGENE R.	1967
FROELICH, DONALD M.	1970
GIERKE, EARL W.	1970
GLAZENER, EVERETT R.	1958
GROVES, EDWIN D.	1970
GRUMBLING, HENRY M.	1968
HARMON, JAMES S.	1969
HERR, JAMES F.	19
HILL, EDWIN K.	1968
HOCH, EMIL H.	1969
HOFER, JARREL	1969
HURLEY, CARL E.	1971
JASNOSZ, THOMAS A.	1969
JELDEN, DAVID L.	1971
JENKINS, JOHN D.	1969
JONES, GARY H.	1969
KING, FRANKLIN J.	1970
KING, FRANKLIN J.	19
KIRKWOOD, JAMES J.	1970
KOONCE, TOMMY R.	1968
KREJCIE, ROBERT V.	1968
MC CAGE, RONALD D.	1970
MOEGENBURG, LOUIS A.	1969
MUNS III, NEDOM C.	1969
NESTEL, GERALD E.	1970
NICKERSON, PAUL S.	1947
O NEILL, JOHN N.	1971
OAKLEY, GARY D.	1970
PAYNE, AM V.	1965
PHILLIPS, JOSEPH W.	1935
PUFAHL, VIRGIL R.	1969
REESER, GEORGE W.	1971
ROUTH, JERRY D.	1970
ROWEN, MILTON S.	1969
SCHOESLER, RONALD D.	1971
SMITH, EARL J.	1968
SMITH, FREDDY J.	1970
SMITH, JAMES A.	1957
SNYDER, VANCE B.	1960
SUMTER, PAUL E.	1969
THATCHER, GLENN M.	1970
THATCHER, GLENN M.	1970
UMSTATTD, WILLIAM D.	1970
WEIR, ELDON L.	1970
WILKES, DORAN F.	1966
WILLS, VERNON L.	1965
YEAGER, LOWERY D.	1965
YOUNG, WILLIAM H.	1969

MEPR - METAL PROCESS

AUTHOR	DATE
GUNDERSON, B. HARRY	1949
PORTER, HAROLD W.	1948
RUSSELL, ELLSWORTH M	1950
RUTEN, WILLIAM H.	1953
SEAL, MICHAEL R.	1969
SINGLETARY, THOMAS A	1968
SNITZ, RUBEN H.	1931
STANGLE, PAUL L.	1967

META - METALLURGY

AUTHOR	DATE
LEHN, LLOYD L.	1967

METH - METHODS

AUTHOR	DATE
ABRAMSON, BERNARD	1950
ABROMAITIS, JOSEPH J	1969
ADAMS, JOHN V.	1947
ADAMS, ROBERT W.	1947
AINSWORTH, CHESTER B	1956
ALEXANDER, WILLIAM F	1965
ALLEN, JOHN C.	1969
AMELON, DONALD J.	1969
AMTHOR, WILLIAM D.	1967
ANDERSON, EDWARD C.	1970
ANDERSON, HERBERT A.	1953
ANDERSON, ROBERT G.	1967
ARMSTRONG, WILLIAM H	1967
ASPER, NORMAN L.	1969
AUER, HERBERT J.	1971
BAILEY JR, JAMES H.	1961
BAKER, GLENN E.	1966
BALLARD, JOHN R.	1966
BALL, CHIALES F.	1958
BARBER, CARL S.	1967
BARLOW, GARY C.	1967
BARON, ANDREW W.	1968
BAUGRUD, KIM J.	19
BEATTY, CHARLES J.	1967
BECKHAM, JOE W.	1969
BECK, EUGENE J.	19
BECK, JOHN R.	1964
BENSEN, JAMES M.	1967
BENSON, M. J.	1967
BERGMAN, KENNETH H.	1963
BERGSTROM, PHILIP G.	1970
BERTRAND, CLINT A.	1964
BIEKERT, RUSSELL G.	1971
BIGGAM, WILLIAM R.	1958
BJORKQUIST, DAVID C.	1965
BJORNERUD, JAMES A.	1970

BLANKENBAKER, E. K.	1970
BLEDSOE, HARRY J.	1968
BLEEKE, MILTON H.	1968
BOCKMAN, DAVID C.	1971
BORRI, ROBERT	1942
BOWMAN, ERNEST L.	1932
BRENNER, CHARLES J.	1968
BROADHURST, FREDERIC	1969
BROOKS, WESTON T.	1964
BROWN III, ALPHA O.	1971
BROWN, ALPHA O.	1971
BRUDZYNSKI, ALFRED J	1966
BURSE SR, LUTHER	1969
BUXTON, ROBERT E.	1960
CALEY, PAUL C.	1969
CAMPBELL, GORDON	1969
CHRISMAN, JOSEPH P.	1970
CLARK, DONALD L.	1967
COOMER, JERRY W.	1971
CORNWELL, RAYMOND L.	1961
COZZENS, CHARLES R.	1965
CREMER, KENNETH D.	1970
CROWDER, GENE A.	1968
CUSHING, NELSON N.	1971
DANNENBERG, RAYMOND	1965
DAWSON, KENNETH E.	1965
DE OLD, ALAN R.	1971
DECKER, HOWARD S.	1953
DENNISON, BOBBY	1970
DENNISON, BOBBY	1970
DITLOW, GEORGE H.	1956
DOTY, CHARLES R.	1968
DOUGHERTY, DORA J.	1955
DUNFEE, EMERY S.	1964
DUTTON, BERNARD	1966
EARLE, JAMES H.	1964
ELLIS, NEIL G.	1966
ENTORF, JOHN F.	1967
EPPLER, THOMAS L.	1969
ERICKSON, RICHARD C.	1966
ESTABROOKE, PAUL L.	1939
ESTLE, EDWIN F.	1966
FACE, WESLEY L.	1963
FAZZINI, PHILLIP A.	1970
FERNS, GEORGE W.	1962
FINCH, CURTIS R.	1969
FINKELSTEIN, ABRAHAM	1959
FLEMING, BRUCE E.	1969
FLUG, EUGENE R.	1967
FORKNER, WILLIAM R.	1968
FOWLER, EWELL W.	1949
FOWLER, RICHARD J.	1965
FRANCHAK, STEPHEN J.	1971
FRANCIS, GEORGE H.	1966
FRESCHET, FERUCIO	1969
FROELICH, DONALD M.	1970
FRYE, BILL J.	1971
FUGAL, GLEN R.	1950
FURIA, JOHN J.	1930
GAINES, THOMAS R.	1955
GALLINELLI, JOHN W.	1970
GARBEE, EUGENE E.	1949
GERNE JR, TIMOTHY A.	1967
GETTLE, KARL E.	1970
GHEEN, W. LLOYD	1970
GHEEN, WILLIAM L.	1970
GIERKE, EARL W.	1970
GRIFFITH, JOHN L.	1967
GROTE, CHARLES N.	1960
GROVES, EDWIN D.	1970
GRUNWALD, WALTER	1958
GUNTHER, THERESA C.	1931
HAHN, MARSHALL S.	1967
HAILES, CHARLES W.	1971
HANCOX, FREDERICK J.	1969
HANKS, WILLIAM S.	1966
HANSBURG, HENRY	1935
HANSON, ROBERT R.	1970
HARDER, JACOB D.	1970
HARDING, LARRY G.	1971
HARMON, JAMES S.	1969
HARNEY, LEON T.	1967
HASKELL, ROGER W.	1969
HATLEY, JIMMY D.	1969
HEEP, RICHARD H.	1939
HEGER, ROBERT J.	1968
HEPLER, EARL R.	1957
HERBERTS, ROGER E.	1971
HERR, JAMES F.	19
HESS, HARRY L.	1969
HEYEL, CLARENCE L.	1967
HICKMAN, KEITH F.	1967
HILL, EDWIN K.	1963
HINCKLYE, EDWIN C.	1963
HOCH, EMIL H.	1969
HOERNER, JAMES L.	1969
HOFER, ARMAND G.	1963
HOLT, JAY F.	1970
HOUSEHOLDER, DANIEL	1963
HULL, THOMAS F.	1964
HURLEY, CARL E.	1971
ILOTT, JOHN F. D.	19
INABA, LAWRENCE A.	1970
JACKMAN, DUANE A.	1961
JACOBSEN, ECKHART A.	1957
JASNOSZ, THOMAS A.	1969
JELDEN, DAVID L.	1960
JOHNSON, FRANK F.	1971
JOHNSON, ROBERT O.	1968
JOHNSTON, JOHN L.	1956
JOLLY, FRANK H.	1970
JONES, GARY H.	1969
KESEMAN, CHARLES E.	1967
KIRKWOOD, JAMES J.	1970
KOBLE, RONALD L.	1963
KRUGER, JOHN M.	1971
KURTH, EDWIN L.	1955
LANGFORD, AL G.	1969
LEASE, ALFRED A.	1964
LEHN, LLOYD L.	1967
LEMASTER, LELAN K.	1961
LICHTBLAU, LEONARD R	1959
LINDAHL, LAWRENCE G.	1944
LINDBECK, JOHN R.	1953
LINE, JOHN D.	1971
LLOYD, CLIFFORD J.	
LOPEZ, GUILLERMO	1970
LOW, FRED G.	1963
LUCK, WILLIAM F.	1966
LUNDY, LYNDALL L.	1968
MAGOWAN, ROBERT E.	1967
MANCHAK, PAUL J.	1965
MARTINEZ, PETE	1970
MC CAGE, RONALD D.	1970
MC EOWEN, ROBERT H.	1967
MC KEE, RONALD R.	1971
MC LONEY WIRT L.	1965
MC MURRY, JAMES G.	1964
MC PHERSON, DANIEL W	1971
MEYER, JOHN M.	1969
MILLS, EARL S.	1971
MITCHELL, JOHN	1954
MOEGENBURG, LOUIS A.	1969
MORRILL, DAVID	1970
MOSS JR, JEROME	1960
MUDGETT, ALBERT G.	1958
MULLER, ERWIN T.	1938
MUNS III, NEDOM C.	1969
NANNAY, ROBERT W.	1970
NEVITT, THOMAS A.	1966
NEWTON, ROBERT E.	1970
NISH, DALE L.	1967
NORMAN, RALPH P.	1955
NORTON, ROBERT E.	1967
NOVOSAD, JOHN P.	1971
NYSTROM, DENNIS C.	1969
OAKLEY, GARY D.	1970
OGUNNIYI, OMUTOSHO	1969
OLIVER, WILMOT F.	1967
OLSON, DAVID O.	19
OLSON, DELMAR W.	1957
ORR, WILLIAM H.	1970
PAINE, OLIVE	1930
PAPP, ALEXANDER G.	19
PHILLIPS, JOSEPH W.	1935
PIERSALL, ARNOLD C.	1964

PORTER, CHARLES B.	1957
POUCHER, KENNETH E.	1968
PRICE, CARROLL S.	1968
PUCEL, DAVID J.	1966
PUFAHL, VIRGIL R.	1969
RAY, J. EDGAR	1944
RAY, REX F.	1966
RAY, WILLIS E.	1957
REBHORN, ELDON A.	1972
REPP, VICTOR E.	1970
RESNICK, HAROLD S.	1970
RICHARDS, KENVYN B.	1970
RICKER, PHILLIP E.	1965
ROBERTS, LAURENCE A.	1968
ROKUSEK, H. J.	1964
ROSIN, WILLIAM J.	1969
ROUTH, JERRY D.	1970
ROWLETT, JOHN D.	1960
ROWNTREE, URWIN	1951
RUGGLES, STANFORD D.	1969
RUITER, WILLIAM W.	1971
RUSSELL JR, JAMES A.	1967
RUTEN, WILLIAM H.	1953
SANDERS, LESTER E.	1967
SCHACHT, ROBERT C.	1971
SCHANBACHER, EUGENE	1961
SCHULER, CHARLES A.	1966
SEAL, MICHAEL R.	1969
SERGEANT, HAROLD A.	1968
SEXTON, WILLIAM E.	1965
SHEPPARD, LAWRENCE E	1967
SHULL, HOWARD I.	1969
SIMICH, JACK	1965
SMITH, CARRELL L.	1969
SMITH, EARL J.	1968
SMITH, FREDDY J.	1970
SMITH, JAMES A.	1957
SMITH, ROBERT E.	1928
SNYDER, VANCE B.	1960
SOLTYS, ROBERT G.	1971
SOMMERS, WESLEY S.	1961
SOMMER, SEYMOUR A.	1971
SPENCE, WILLIAM P.	1957
STANFIELD, FOSTER A.	1971
STANGLE, PAUL L.	1967
STEELE, GERALD L.	1967
STIEGLER, LAIRD B.	1971
SULLIVAN, JAMES A.	1967
SUMTER, PAUL E.	1969
SVENDSEN, CLARENCE R	1970
TEEL, DEAN A.	1967
THATCHER, GLENN M.	1970
THATCHER, GLENN M.	1970
THOMPSON, ROBERT L.	1947
TORBETT, DANIEL L.	1965
TRAUTWEIN, CALVIN L.	1962
VANN, LOWELL C.	1970
VESPER, KARL H.	1969
VOGEL, RICHARD F.	1968
WAGNER, EDGAR S.	1960
WALKER, JOE W.	1970
WALKER, LLOYD R.	1946
WARREN, WILLIAM H.	1970
WEFFENSTETTE, WALTER	1965
WILKES, DORAN F.	1966
WILLEMS, ALVIN E.	1970
WILLS, VERNON L.	1965
WILSON, RUSSELL C.	1971
WINDLE, JIM L.	1968
WISEMAN, EMORY E.	1969
WOLD, KENNETH M.	1961
WOLFE, JAMES M.	1970
WORTHINGTON, ROBERT	1958
WRIGHT, WELCOME E.	1953
YEAGER, LOWERY D.	1965
YEE, JOOST	1965
YOUNG, WILLIAM H.	1969

METL - METALS

AUTHOR	DATE
AGUIRRE, EDWARD	1966
AMELON, DONALD J.	1969
ANDERWALD, CARL J.	1947
AXELROD, AARON	1951
BAILEY, GERALD D.	1964
BECKER, DEROLD W.	1969
BOCKMAN, DAVID C.	1971
BRILEY, FRANK E.	1967
BUXTON, ROBERT E.	1960
CAMPBELL, CLIFTON P.	1971
CUSHING, NELSON N.	1971
DREW, ALFRED S.	1962
EVANS, RUPERT N.	1950
FALLS, JOHN E.	1968
GORDON, LINDA	1971
GRAHAM, GREGORY S.	1971
HALE, LESTER W.	1967
HARPER, HERBERT D.	1934
HAUSER, ROGER E.	1971
HOOVER, ROGER L.	1967
HOROWITZ, IRVING L.	1939
IVES, QUAY D.	1971
KLEIN, CHARLES T.	1942
LANDERS, FREDERICK W	1937
LEFFARD, WARREN L.	1968
LEHN, LLOYD L.	1967
MC GAW, SIDNEY E.	1952
MILLER, THOMAS W.	1958
NAROFF, ARNOLD	1971
NICHOLS JR, GEORGE V	1971
ORR, WILLIAM H.	1970
PARDINI, LOUIS J.	1967
PEDERSEN, GEORGE L.	1957
PITTMAN, FRANK M.	1970
RAU, GERALD N.	1971
RAY, WILLIS E.	1957
ROSS, RAYMOND J.	1966
RUSSELL, ELLSWORTH M	1950
RUTEN, WILLIAM H.	1953
SALMON, DANIEL A.	1965
SHIH, WEI-TUN	1969
SINGLETARY, THOMAS A	1968
SOLIMAN, ABDEL RAZEK	1970
SONNY, JACOB	1971
STANGLE, PAUL L.	1967
UMSTATTD, WILLIAM D.	1970
WHITE, BRUCE H.	1967
WISEMAN, EMORY E.	1969

MNIP - MANIPULATIVE

AUTHOR	DATE
ALEXANDER, WILLIAM F	1969
ALLEN, JOHN C.	1969
ARVEY, RICHARD D.	1970
AUER, HERBERT J.	1971
BECKER, DEROLD W.	1969
BENSEN, JAMES M.	1967
BENSON, M. J.	1967
BIEKERT, RUSSELL G.	1971
BLANKENBAKER, EDWIN	1970
BLANKENBAKER, E. K.	1970
BORTZ, RICHARD F.	1967
BROWN, GEORGE J.	1960
BZOWSKI, EDWARD D.	1969
CLAWSON, LA VERE E.	1967
CLENDENNING, LEE R.	1972
COMER, JOHN C.	1970
COOVER, SHRIVER L.	1941
CUSHING, NELSON N.	1971
D AMBROSIO, VINCENT	1969
DEAN, ROBERT D.	1959
DENOVA, CHARLES C.	1968
DOTY, CHARLES R.	1968
FLUG, EUGENE R.	1967
GRANEY, MAURICE R.	1942

GRUNWALD, WALTER	1968
GUNTHER, THERESA C.	1931
HAILES, CHARLES W.	1971
HANSON, ROBERT R.	1970
HENAK, RICHARD M.	1971
HERR, JAMES F.	1970
HERR, JAMES F.	19
HOFER, ARMAND G.	1963
HULL, THOMAS F.	1964
HURLEY, CARL E.	1971
JENKINS JR, JAMES	1955
JENKINS, JOHN D.	1969
JOLLY, FRANK H.	1970
KASSAY, JOHN A.	1970
KRUGER, JOHN M.	1971
KRUPPA, RICHARD A.	1970
LINTON, JOHN A.	1951
LUTZ, RONALD J.	1969
MARTINEZ, PETE	1970
MC EOWEN, ROBERT M.	1967
MEYER, JOHN M.	1969
MILLER, JAMES A.	1971
MILLS, BOYD C.	1967
NANNAY, ROBERT W.	1970
NELSON, ORVILLE W.	1967
NICHOLS JR, GEORGE V	1971
NORTON, ROBERT E.	1967
OAKS, MERRILL M.	1970
ORR, WILLIAM H.	1970
PRITCHARD, MIRIAM C.	1937
REBHORN, ELDON A.	1972
RICHARDSON, ROBERT B	1967
ROWLETT, JOHN D.	1960
SNYDER, VANCE B.	1960
SOMMER, SEYMOUR A.	1971
STANTON, MILDRED B.	1938
SWANSON, RICHARD A.	1968
THIEME, EBERHARD	1965
WAISNER, GARY L.	1970
WEFFENSTETTE, WALTER	1965
WILLEMS, ALVIN E.	1970
WORTHINGTON, ROBERT	1958

MNTR - MANUAL TRAINING

AUTHOR	DATE
ELLENWOOD, THEODORE	1960
HAMMER, GERALD K.	1962
LUCE, LAWRENCE W.	1957
PAINE, OLIVE	1930
RYAN, JAMES E.	1964

MOTI - MOTIVATION

AUTHOR	DATE
LAPIDUS, GEORGE	1954
LOCKETTE, RUTHERFORD	1956
NICHOLSON, DAVID H.	1948
REESER, GEORGE W.	1971
STELZNER, RAYMOND R.	1969

MSPR - MASS PRODUCTION

AUTHOR	DATE
ILOTT, JOHN F. D.	19
KURIEN, CHEMPALATHAR	1967
LINDAHL, LAWRENCE G.	1944
SMALLEY, LEE H.	1962
STEINGART, JACOB	1970

NDEF - NATIONAL DEFENSE

AUTHOR	DATE
BATES, WILLIAM M.	1969
BETTIS, LLOYD E.	1971
KLEIN, CHARLES T.	1942
LANG, EDWARD H.	1942

NEA - NATIONAL EDUCATION ASSN.

AUTHOR	DATE
DITZLER, WALTER E.	1953

OBJ - OBJECTIVES

AUTHOR	DATE
ALLEN, JAY M.	1967
BACKUS, KERBY D.	1968
BIEDLER, JOHN S.	1958
BURNS, WILLIAM E.	1965
CREMER, KENNETH D.	1970
DAVIDSON, JOHN E.	1968
DENNIS, ERVIN A.	1966
DOTY, CHARLES R.	1968
DUNLAP, EUGENE W.	1962
FALES, ROY G.	1948
HALL, JAMES F.	1954
HAWSE, JOHN E.	1964
HOLTROP, WILLIAM F.	1948
IVINS, WILSON H.	1947
JENNINGS, GERALD L.	1968
JULIAN, LESTER J.	1953
KEITH, CHARLES W.	1964
KEMP, WILLIAM H.	1966
KLEHM, WALTER A.	1937
MASSEY, HAL	1965
MELINE, CHARLES W.	1965
MOELLER, CARL A.	1961
PARDINI, LOUIS J.	1967
POWER, ANDREW T.	1955
ROY, WENDELL L.	1963
SCHAEFER, ROGER A.	1969
TALKINGTON, JOE E.	1962
TURNER, ALFRED B.	1941
TURNER, BRIDGES A.	1941
WAINA, RICHARD B.	1969
WOODY JR, EARL T.	1963

OCCU - OCCUPATIONS

AUTHOR	DATE
BRENHOLTZ, GERALD S.	1967
BROWN, B. WESLEY	1960
BURRIS, WAITUS R.	1967
DE VORE, PAUL W.	1961
DODGE, ARTHUR F.	1935
FAULDS, VINCENT R.	1956
GREER, JOHN S.	1967
HAGGLUND, GEORGE S.	1966
HAMPTON, THOMAS E.	1950
MC DOWELL, LEONARD C	1964
MC INNIS, DONALD W.	1971
MILLER, L. PAUL	1939
MORGAN, DARYLE W.	19
OGUNNIYI, OMOTUSHO	1969
PLUSCH, JAMES O.	1967
RICHARDSON, ROBERT B	1967
SOLTMAN, ABDALLA M.	1967
VAN GIGCH, JOHN P.	1968
YOUMANS, CHARLES V.	1955

OCIN - OCCUPATIONAL INFORMATION

AUTHOR	DATE
AKEY, WAYNE W.	1952
AL-BUKHARI, NAJATI M	1968
ALLEN, JAY M.	1967
ANDERSON, EDWARD C.	1970
ANDERSON, ROBERT G.	1967
ATTERBERRY, PAT H.	1954
BAKER, RONALD D.	1968
BARNETT, LEONARD J.	1969
BASKIN, SAMUEL	1954
BLACK, DONALD E.	1970
BROEMAER, GARY M.	1968
BRUE, JAMES E.	1969
CAMBRIA, SOPHIA T.	1945
CHILSON, JOHN S.	1969
CLABAUGH, RICHARD D.	1971
COHEN, LOUIS A.	1965
CORMACK, ROBERT B.	1970
CRABTREE, JAMES S.	1967
CRUNKILTON, JOHN R.	1969
CUONY, EDWARD R.	1953
DAUGHERTY, RONALD D.	1971
DONADIO, BLASE	1969
ENVICK, ROBERT M.	1970
FEATHER, DON B.	1949
FEGAN, HAROLD J.	1971
FRANTZ JR, NEVIN R.	1967
FRISBY, RUSSELL C.	1968
FUGLSBY, GLEN O.	1965
GOFF, WILLIAM H.	1967
HALL, DAVID H.	1971
HAYES, BILLY D.	1968
HOENES, RONALD L.	1970
JACKMAN, DUANE A.	1961
JUDD, WILLIAM P.	1971
KANTER, STUART A.	1968
KAVIEFF, MELVIN C.	1961
KLEINTJES, PAUL L.	1953
KREIDER, LEONARD E.	1968
KURTZ, HARMON H.	1959
LAHREN, JAMES A.	1970
LE BLANC, DARRELL R.	1971
LEMLEY, JOE W.	1970
LEONARD, REGIS L.	1950
LIEN, DAVID A.	1971
LINKSZ, JAMES J.	1971
LITTRELL, JOSEPH J.	1958
LOOSLE, DARRELL K.	1967
LOWENSTEIN, NORMAN	1955
MAC DONALD, MANLEY E	1944
MARTIN, WALDO D.	1970
MARTIN, WILLIAM E.	1970
MC CABE, FRED J.	1970
MC CRACKEN, JOHN D.	1970
MC NEILL, JOSEPH G.	1970
MC ROBBIE, J. M.	1963
MORRISON, JESSIE S.	1969
MORTIMER, WILLIAM E.	1956
NAROFF, ARNOLD	1971
NICHOLS, JACK D.	1970
NIEMELA, ALBERT W.	1949
PEEL, NANCY D.	1967
PELLEGRIN JR, JOSEPH	1971
PRICE, CARROLL S.	1968
RAYFORD, ERWIN W.	1967
ROBERTS, LAURENCE A.	1968
ROBINSON, CLARK N.	1947
RONODIDIJOJO, SOEWAN	1968
RUSSELL, SAMUEL E.	1966
SCHELLER, THOMAS G.	1967
SCHOEPPLER, JACOB	1958
SELMAN, JAMES W.	1967
SHIGETOMI, SAMSON S.	1970
SMITH, EARL J.	1968
STUART, IRVING R.	1951
TATUM JR, JULIAN P.	1967
TRAMBLEY, JOHN B.	1969
TURECHEK, ARMIN G.	1967
TURNER, ROBERT E.	1957
VAN GIGCH, JOHN P.	1968
VANTRUMP, WILLIAM F.	1961
WARD, DARRELL L.	1971
WEST, WILLIAM E.	1969
WHATLEY, ALICE E.	1967
WHEELER JR, CHARLES	1967
WHYBARK, DAVID C.	1967
WIGGS, GARLAND D.	1971
WILLENSON, MILTON W.	1968
WILLIAMS, ROBERT T.	1969
WYNNE, ROBERT L.	1968
ZIMMER, THEODORE A.	1969
ZOPPETTI, MATTHEW	1970

OCSU - OCCUPATIONAL SURVEYS

AUTHOR	DATE
ANDERSON, RAY N.	1932
BADER, LOIS	1932
BAGLEY, RONALD E.	1965
BAKER, ALFRED E.	1943
BARNETTE JR, W. L.	1949
BATES, WILFRED M.	1968
BROWN, MILTON T.	1948
CURTIS, BYRON W.	1968
EISS, ALBERT F.	1954
ENVICK, DONALD D.	1968
ERWIN, CLIFFORD H.	1963
FAULDS, VINCENT R.	1956
FLEMING, JOSEPH W.	1937
FUGLSBY, GLEN O.	1965
GAINES, THOMAS R.	1955
GALLUP, LELLAND L.	19
GERBRACHT, CARLTON J	1949
GOLDBERG, JOEL	1971
GUDITUS, CHARLES W.	1965
HAGEMEYER, RICHARD H	1960
HALL, RONALD W.	1970
HAMPTON, THOMAS E.	1950
HILL, FREDERICK W.	1942
HODGSON, PAUL M.	1965
HOROWITZ, IRVING L.	1939
JETTER, EVERETT V.	1932
JORDAN, KENNETH F.	19
KAFFER, FRED C.	1941
KJOS, OSCAR E.	1954
KRUSKOP, LEROY L.	1969
LANGERMAN, PHILLIP D	1968
LITTRELL, JOSEPH J.	1958
MARTIN, WALDO D.	1970
MEYERS, LARRY D.	1968
MILLS, BOYD C.	1967
O NEILL, JACK H.	1954
PEEL, NANCY D.	1967
RELYEA, GLADYS M.	1937
SCHORLING, HORACE O.	1950
SIMONS, ROBERT M.	1969
SNOW, JOHN W.	1966
STEPHENS, ROBERT L.	1969
STRUCK, JOHN W.	1956
TATSCH, CLINTON E.	1970
TEMPLE, CHARLES M.	1970
TURNER, ERWIN	1958
TURNER, ROBERT E.	1957
VANTRUMP, WILLIAM F.	1961
WALSTON, HARRY W.	1970
WEEDE, GARY D.	1967
WHITE, ALVIN M.	1958
WILBUR, LOUISE	1931
WILLIAMS, ROBERT T.	1969
WOOLDRIDGE, ROBERT E	1961

PATN - PATTERNMAKING

AUTHOR	DATE
BRILEY, FRANK E.	1967

PERS - PERSONNEL

AUTHOR	DATE
COCHRAN, GEORGE C.	1967
GOSSAGE, LOYCE C.	1967
HIGER, PAUL T.	1958
HUMBLE. MILFORD K.	1937
IACOBELLI, JOHN L.	1969
JAHRMAN, QUAIN K.	1964
KACHEL, STANLEY	1967
KEIL, RAYMOND L.	1966
KRUPPA. RICHARD A.	1970
MC NEILL, JOSEPH G.	1970
O NEILL, JACK H.	1954
STAMM, HAROLD S.	1968

PHIL - PHILOSOPHY

AUTHOR	DATE
AL-BUKHARI, NAJATI M	1968
ANDERSON, LOWELL D.	1969
ASPER. NORMAN L.	1969
BACKUS. KERBY D.	1968
BAILY. ATHOL R.	1949
BAIRD, RONALD J.	1960
BELL. CLAUDE A.	1964
BIEDLER, JOHN S.	1958
CARR. EVA R.	1970
CARTER, JOHN P.	1970
CLABAUGH, RICHARD D.	1971
CLECKLER, JAMES C.	1969
CLEVELAND, JOHN M.	1961
DASGUPTA, DEBENDRA C	1932
DAVISON, HAROLD J.	1931
DAVIS. WARREN C.	1936
DYKEHOUSE, JAY	1950
FAHRLANDER, DANIEL C	1972
FALES. ROY G.	1948
FENCLASON, DONALD W.	1963
HALL. CLARENCE E.	1969
HALL. JAMES R.	1970
HAMMER. GARLAND G.	1951
HAMMOND. ROBERT G.	1956
HAWSE. JOHN E.	1964
HIRSCHI, HARVEY C.	1969
HORNBLAKE, R. LEE	1939
HUXOL. ROBERT L.	1954
HYDE, ELDON K.	1968
KACHEL. STANLEY	1967
KARR. DONALD L.	1969
KELLER, LOUISE J.	1969
KEMP, WILLIAM H.	1966
KOHN. DIXIE A.	1967
KRAFT, RICHARD H.	1967
KREPEL. WAYNE J.	1967
LAHREN. JAMES A.	1970
LOOSLE. DARRELL K.	1967
MAGISOS, JOEL H.	1968
MALIK. JOSEPH A.	1968
MASON. WILLIAM H.	1970
MC CLELLAN. LARRY D.	1971
MC GIVNEY, JOSEPH H.	1967
MC KEE. RONALD R.	1971
MC KINNEY. FLOYD L.	1969
MC NEIL, JACKSON M.	1968
MEYER. HARVEY K.	1951
MOELLER, CARL A.	1961
MORGAN. JIMMY B.	1969
MORTIMER, WILLIAM E.	1956
NEASHAM, ERNEST R.	1968
NIELSEN. ARNOLD M.	1970
PATE JR, DOVE H.	1970
RALSTROM, STIG E.	1969
RINEHART, RICHARD L.	1966
ROBINSON, WALTER J.	1950
SCHREIBER, ERNEST	1967
SEARS JR, WILLIAM P.	1930
SHELTON, JOHN A.	1963
SHEPARD, JON M.	1963
SHERMAN, DOUGLAS R.	1955
SHIBLER, HERMAN L.	1941
SLATTERY, RAYMOND A.	1969
SPRECHER, ROBERT E.	1970
STEGMAN, GEORGE K.	1962
SVENDSEN, ETHAN A.	1961
TALKINGTON, JOE F.	1962
TAYLOR. CYRUS B.	1955
TEMPLETON, RONALD K.	1967
THOMAS. CHARLES L.	1964
THOMAS. JOSEPH K.	1957
THORP. JOHN H.	1945
TSUJI. THOMAS T.	1967
WEAGRAFF, PATRICK J.	1971
WHITESEL, JOHN A.	1940
WOCKENFUSS, WILLIAM	1960
WOODY JR, EARL T.	1963
ZULLINGER, JOHN	1966

PHYS - PHYSICS

AUTHOR	DATE
GROTE. CHARLES N.	1960

PLAC - PLACEMENT

AUTHOR	DATE
ALLEN. JAY M.	1967
BARNETT, LEONARD J.	1969
CAMBRIA, SOPHIA T.	1945
CAMBRIA, SOPHIA T.	1945
COHEN. CHESTER G.	1970
COX. ROBERT L.	1970
CUONY, EDWARD R.	1953
DRENNAN, JERRY D.	1970
DUGGER, CECIL W.	1968
ELMGREN JR, G. THEOD	1963
ERWIN. CLIFFORD H.	1963
FLUCK, BRYAN V.	1970
FUGLSBY, GLEN O.	1965
FULLER. FOSTER D.	
HAYES. BILLY D.	1968
HILLSMAN, SALLY	1970
JACKSON, THOMAS A.	1962
LEAVITT, WILLIAM C.	1969
MAC DONALD, MANLEY E	1944
MATTESON, GERALD R.	1966
NIENHAUS, BERNARD J.	1971
NORTON. ELIZABETH N.	1970
RAYFORD, ERWIN W.	1967
RIETH. CLAUDE E.	1966
ROSENQUIST, BARBARA	1971
RUMPF. EDWIN L.	1954
RUTHERFORD, WILLIAM	1962
SCHENCK, JOHN P.	1969
SCHRAMM, DWAYNE G.	1969
SHERRELL. EUGENE G.	1969
TICHENOR, HAROLD D.	1967
TREGO. JOHN W.	1958
TROOBOFF, BENJAMIN M	1968
WANGER, RUTH	1971
WASHBURN, KENNETH R.	1971
WATERSTREET, DONALD	1969
WOMMACK, CHARLES H.	1967
WOOD. GRANT R.	1970
WOOD. GRANT R.	1970
WRIGLEY, MARGARET	1968
ZOOK, WAYNE H.	1968
ZUDAK. LAWRENCE S.	1969

PLAS - PLASTICS

AUTHOR	DATE
CANTOR, ROBERT L.	1952
ENVICK, DONALD D.	1968
ENVICK, ROBERT M.	1970
ENVICK, ROBERT M.	1970
GOLOMB, ARTHUR E.	1962
KAISER, HENRY	1968
NISH, DALE L.	1967
RUNNALLS, JAMES J.	1965
STEELE, GERALD L.	1967
THORNTON, ROBERT W.	1971
ZOOK, WAYNE H.	1968

POWR - POWER

AUTHOR	DATE
ALLEN, WILLARD A.	1963
DAVIS, JIM L.	1966
ECKER, LOUIS G.	1965
GARRETT, ARTHUR M.	1971
GORDON, KENNITH G.	1971
GRANNIS, GARY E.	1970
LOCKE, LEWIS A.	
LUCK, WILLIAM E.	1966
LUNDY, LYNDALL L.	1968
RINCK, JOE A.	1968
SCHMIDT, HOWARD R.	1971
SULLIVAN, JAMES A.	1967
WEBSTER, JAY L.	1970

PR - PUBLIC RELATIONS

AUTHOR	DATE
ARNOLD, DANIEL S.	1968
COATES, NORMAN	1967
COOPER, JACK H.	1961
EGGERS, JERRY R.	1970
EVEN, MARY J.	1971
FOLTMAN, FELICIAN F.	1950
HALL, CLARENCE E.	1969
HALL, JAMES R.	1970
HIRSCHI, HARVEY C.	1969
HOENES, RONALD L.	1970
HUMBERT 3, JOHN J.	1967
IRGANG, FRANK J.	1956
JOHNSTON, WALLACE L.	1968
JONES, GUY R.	1971
KAVICH, LAWRENCE L.	1964
KELLER, LOUISE J.	1969
KOHN, DIXIE A.	1967
LA BOUNTY JR, HUGH O	1961
LINKSZ, JAMES J.	1971
LONG, GILBERT A.	1970
LYNN, WILLIAM L.	1968
MC CLELLAN, LARRY D.	1971
MC CRACKEN, JOHN D.	1970
MONROE, ALLEN L.	1970
MORGAN, JIMMY B.	1969
O NEILL, JOHN N.	1971
PALMER, HAROLD G.	1950
PARKS, DARRELL L.	1968
ROBERTS, EDWARD R.	1971
RUTHERFORD, WILLIAM	1962
SCHAFFER, ROGER A.	1969
STAMM, HAROLD S.	1968
THOMAS, JOSEPH K.	1957
TUTHILL, RUSSELL	1970
ZIEL, HENRY R.	1961

PRAR - PRACTICAL ARTS

AUTHOR	DATE
BING, KENNETH L.	1941
CHAMBERLAIN, DUANE G	1954
DAVISON, HAROLD J.	1931
DUNCAN, GLENN S.	1950
FAHRLANDER, DANIEL C	1972
KARR, DONALD L.	1969
MC KENZIE, CHARLES R	1971
MOORE, ALFRED H.	1954
TAYLOR, CYRUS B.	1955
WELSH, BARTON W.	1971
YOHO, LEWIS W.	1959

PRED - PREDICTION

AUTHOR	DATE
ATHANASIOU, ROBERT B	1965
AUCKER, JOHN R.	1970
BEACH, CHARLES K.	1941
BEHM, HARLEY D.	1967
BOYER, CAROLINE K.	1966
BROADHURST, JOHN C.	1949
BROE, JOHN R.	1962
CHILSON, JOHN S.	1969
CHUANG, YING C.	1967
CLAUSEN, JOHN N.	1955
COHEN, JERRY M.	1969
COX, STEVEN G.	1968
D AMBROSIO, VINCENT	1969
DEAN, C. THOMAS	1951
DRAKE, LAWRENCE C.	1966
DYKE, EUGENE L.	1962
ELLIOTT, EARL S.	1967
ELMER, FRANCES W.	1967
ENSMAN, LEO M.	1957
EVANCHO, MICHAEL	1947
FARABAUGH, MARTIN P.	1966
FLEMING, JOSEPH W.	1937
FRYKLUND, VERNE C.	1933
GAINES, THOMAS R.	1955
GARNER, CAREY C.	1969
GIACHINO, JOSEPH W.	1949
GRIFFIN, JAMES F.	1970
HACKETT, EDWARD V.	1967
HARRIS, VIRGINIA J.	1961
HAUGO, RICHARD R.	1969
HOLLINSHEAD, MERRILL	1952
HORINE, JOHN W.	1961
JARVIS, JOHN A.	1953
JELDEN, DAVID L.	1971
JENKINS, FARRELL T.	1969
JENKINS, NORMAN L.	1969
JOHNSON, MARVIN E.	1959
KOUTNIK, PAUL G.	1968
KRANTZ, MATTHEW B.	1970
KRUBECK, FLOYD E.	1954
KUNTZ, ELMER L.	1963
KURTH, EDWIN L.	1955
LARSON, RAYMOND H.	1951
LOWMAN, CLARENCE L.	1967
MICHIE, JACK	1968
MILLER, AARON J.	1966
MILLER, CLARENCE M.	1968
MOORE, LELAND B.	1970
NAIR, RALPH K.	1950
NEEDHAM, RAYMOND J.	1969
NESWICK, LAWRENCE G.	1971
PARKHILL, GEORGE J.	1939
PEERSON, RICHARD H.	1969
PITTMAN, FRANK M.	1970
QUICK, OTHO J.	1954
RALSTROM, STIG E.	1969
RICHARDSON, ROBERT B	1967
RISHER, CHARLES G.	1953
ROBINSON, FRANK E.	1955

RYAN. ROBERT D.	1964
SANDMAN, CHARLES W.	1969
SCHULTZ, IRWIN J.	1949
SCOTT. CHARLES P.	1943
SENTENEY, GEORGE W.	1955
SOURS. CHARLES F.	1969
STALLINGS, DANIEL N.	1969
STONE, THOMAS C.	1969
STOUGHTON, ROBERT W.	1955
STOUGH. KENNETH F.	1968
SULLIVAN, THOMAS W.	1967
THORPE. CLAIBURNE B.	1968
TORBETT, DANIEL L.	1965
TUCKER. CASEY A.	1965
UXER, JOHN E.	1967
VACEK. WILLIAM L.	1962
VAN OOT, BENJAMIN H.	1932
WIGHTWICK. BEATRICE	1949
WITT, NORMAN E.	1969
WOOLDRIDGE, ROBERT E	1961
WRIGHT. LAWRENCE S.	1954
YEAGER. LOWERY D.	1965
YOUNG. ROBERT W.	1966
ZIMMER. THEODORE A.	1969

PRNT - PRINTING

AUTHOR	DATE
ARONSON, NORMA	1967
BLACK. RALPH R.	1959
COX. ROBERT L.	1970
EGGERS. JERRY R.	1970
FRANTZ JR, NEVIN R.	1967
GLOGOVSKY, RONALD J.	1970
GOETZ. ROBERT E.	1958
HANSBURG, HENRY	1935
HERR, JAMES F.	19
JENKINS. JOHN D.	1969
JENKINS, REESE V.	1966
KEMP. WILLIAM H.	1966
MELINE. CHARLES W.	1965
MEYERS. ALBERT	1967
MORRILL, DAVID	1970
MOSS JR, JEROME	1960
PUFAHL, VIRGIL R.	1969
RAYFORD, ERWIN W.	1967
RICE. CHARLES M. M.	1958
RIETH, CLAUDE E.	1966
STRANDBERG, C. E.	1963
WEIR. THOMAS S.	1955
WILSON. MICHAEL C.	1969

PROB - PROBLEM SOLVING

AUTHOR	DATE
ANDERSON, DONALD N.	1963
BABCOCK, JAMES G.	1969
BAKER, GLENN E.	1966
BAKER. RONALD D.	1968
BRENNER, CHARLES J.	1968
COLCLASER JR, ROBERT	1968
CORNWELL. RAYMOND L.	1961
EVEN, MARY J.	1971
FERNS. GEORGE W.	1962
FINCH. CURTIS R.	1969
HANKS. WILLIAM S.	1966
HARNEY. LEON T.	1967
HARRISON JR, PAUL E.	1955
IVES. QUAY D.	1971
KOUTNIK, PAUL G.	1968
ROWLETT. JOHN D.	1960
SHEPPARD, LAWRENCE E	1967
STANFIELD, FOSTER A.	1971
STEPHENSON. DONALD J	19
TEEL. DEAN A.	1967
WALLS. W. DALE	1964
WEHRLI, ROBERT	1968

PROC - PROFESSIONAL COURSES

AUTHOR	DATE
CHARLESWORTH, KENNET	1968
ELLINGTON, MARK	1936
FRYE, BILL J.	1971
GAVIN, GORDON O.	1968
GUNDERSON, ORLEY D.	1971
HAUER, NELSON A.	1949
LEAVITT, WILLIAM C.	1969
LINDAHL, DONALD G.	1971
MARBURGER, EDWARD F.	1948
MC NEILL, JOSEPH G.	1970
MILLER, JACK D.	1971
MOONEY. JAMES J.	1967
NIELSEN, ERWIN E.	1969
PREITZ. CLARENCE H.	1969
SPAZIANI. RICHARD L.	1972
WIGGS, GARLAND D.	1971

PROD - PRODUCTS

AUTHOR	DATE
COLLONS, RODGER D.	1967
HAUENSTEIN, ALBERT D	1966
MAGOWAN, ROBERT E.	1967
TAGGART, LEO R.	1953

PROG - PROGRAMMED LEARNING

AUTHOR	DATE
AGUIRRE, EDWARD	1966
ARMSTRONG, WILLIAM H	1967
BALLARD, JOHN R.	1966
BECKHAM, JOE W.	1969
BECK, JOHN R.	1964
BENSEN, JAMES M.	1967
BENSON, M. J.	1967
BERTRAND, CLINT A.	1964
BOCKMAN, DAVID C.	1971
CAMPBELL, GORDON	1969
CHRISMAN, JOSEPH P.	1970
DANNENBERG, RAYMOND	1965
GALLINELLI, JOHN W.	1970
GIERKE, EARL W.	1970
GLAZENER, EVERETT R.	1958
GRIFFITH, JOHN L.	1967
HAHN, MARSHALL S.	1967
HANCOX. FREDERICK J.	1969
HARMON, JAMES S.	1969
HASKELL, ROGER W.	1969
HEYEL, CLARENCE L.	1967
HOCH, EMIL H.	1969
HOUSEHOLDER, DANIEL	1963
LEASE. ALFRED A.	1964
LUNDY. LYNDALL L.	1968
MANCHAK, PAUL J.	1965
MC NAMARA, JAMES F.	1970
MOEGENBURG, LOUIS A.	1969
NAROFF. ARNOLD	1971
NORTON, ROBERT E.	1967
RICHARDS, KENVYN B.	1970
ROKUSEK, H. J.	1964
RUGGLES, STANFORD D.	1969
SEAL, MICHAEL R.	1969
SHULL. HOWARD I.	1969
SHULL. HOWARD I.	1969
SMITH. DARRELL L.	1969
SMITH. FREDDY J.	1970
WARNER. RICHARD A.	1969
WEFFENSTETTE, WALTER	1965
YEE, JOOST	1965

PROJ - PROJECTS

AUTHOR	DATE
BAKER, GLENN E.	1966
BLEEKE, MILTON H.	1968
DUFFY, JOSEPH W.	1958
HANSEN, PHILLIP W.	1970
ILOTT, JOHN F. D.	19
KLEHM, WALTER A.	1937
PORTER, SAM R.	1962
WEST, WILLIAM E.	1969

PROR - PROFESSIONAL ORGANIZATIONS

AUTHOR	DATE
ACHILLES, CHARLES M.	1967
ALLEN, DAVID	1962
ALLEN, DAVID	1962
BARTEL, CARL R.	1959
BELL, CLAUDE A.	1964
HAHN, BRUCE J.	1953
HAMMOND, HOWARD R.	1971
HORTON, GEORGE R.	1967
JACKSON, PETER A.	1965
JOHNSON, ELOUISE E.	1967

PRPL - PROGRAM PLANNING

AUTHOR	DATE
ACHILLES, CHARLES M.	1967
ADAMS, JOHN V.	1947
ADAMS, ORVILLE D.	1952
ALGER JR, LEON J.	1967
ALKAN, OMER C.	1969
AMBERSON, MAX L.	1968
ANDERSON, DONALD N.	1963
ANDERSON, ERNEST F.	1966
ANDREWS, EARL R.	1968
ASHBROOK, WILLIAM D.	1944
ASHCRAFT, NORMAN C.	1968
ASPER, NORMAN L.	1969
AXELROD, AARON	1951
BAAB, CLARENCE T.	1950
BAIRD, RONALD J.	1960
BAKER, GLENN S.	1968
BARBER, CARL S.	1967
BARICH, DEWEY F.	1961
BATESON, WILLARD M.	1954
BEACH, ROBERT B.	1967
BEKTON, WILLIAM E.	1965
BESTOR, ROLLIE R.	1969
BLACKBURN, SAMUAL A.	1930
BLECKMAN, JUDITH C.	1971
BOAZ, HOLLAND E.	1965
BOYER, CAROLINE K.	1966
BRAME, WILLIAM E.	1967
BROEMAER, GARY M.	1968
BROTHERTON, WILLIAM	1964
BUDKE, WESLEY E.	1970
CAMPBELL, ROBERT A.	1961
CAMPION, HOWARD A.	1941
CAMPION, HOWARD A.	1941
CANDOLI, I. C.	1967
CARR, HAROLD L.	1970
CAULEY, MICHAEL J.	
CHARLESWORTH, KENNET	1968
CHRISTIAN, JACK B.	1969
CHUANG, YING C.	1967
CLARK, DONALD I.	1967
CLARK, JAMES V.	1967
CLEVELAND, JOHN M.	1961
COBURN, JAMES M.	1969
COCHRAN, LESLIE H.	1968
COOPER, JACK H.	1961
COTTON, GEORGE R.	1944
CRAWSHAW, MARSHALL R	1950
CREMER, KENNETH D.	1970
CROMER, CHALMERS A.	1970
CRUNKILTON, JOHN R.	1969
DAVID, WILLIAM J.	1968
DAVIS, JIM L.	1966
DAVIS, WARREN C.	1936
DEAN, ERNEST D.	1968
DEAN, ROBERT D.	1959
DECKER, GEORGE C.	1943
DOBSON, CLIFFORD G.	1956
DOLEZAL, WILMA M.	1968
DRAZEK, STANLEY J.	1950
DREW, ALFRED S.	1962
DUKES, GLENN F.	1969
ELIAS, JOHN E.	1970
ELLIS, MARY L.	1970
ENGELBART, LEON P.	1970
EPHRAIM, JOHN	1969
ERWIN, WILLIAM R.	1963
FAHRLANDER, DANIEL C	1972
FINNEY JR, JOHN D.	1967
FISHER, RICHARD E.	1956
FORBES, ROY H.	1970
FOWLER, HARMON R.	1970
FRYE, BILL J.	1971
FRYE, ROYE M.	1963
FUGLSBY, GLEN O.	1965
GELINAS, PAUL J.	1954
GILBERT, HAROLD G.	1955
GLAU, JON E.	1970
GORDON, KENNITH G.	1971
GORDON, LINDA	1971
GRAMBERG, MERLYN L.	1971
GRAY, JAMES A.	1969
GRAY, KENNEY E.	1970
GROVES, EDWIN D.	1970
GROVES, RAMSEY M.	1966
GRUMBLING, HENRY M.	1968
GUDITUS, CHARLES W.	1965
HACKETT, DONALD F.	1953
HAMPTON, THOMAS E.	1950
HANSEN, JOHN R.	1970
HARRIS, JAMES G.	1970
HAWS, ROBERT W.	1947
HELLAND, PHILLIP C.	1964
HENDRIX, WILLIAM F.	1957
HERMAN, JAMES A.	1969
HOSTETLER, IVAN	1945
HUBBARD, LOUIS H.	1930
HUKILL, VIRON N.	1958
HUMBERT 3, JOHN J.	1967
INGRAM, FRANKLIN C.	1966
IRGANG, FRANK J.	1956
JENKINS JR, JAMES	1955
JENSEN JR, ROBERT D.	1969
JETTER, EVERETT V.	1932
JOHNSON, FRANKLIN R.	1969
JOHNSON, RAYMOND C.	1971
JUDD, WILLIAM P.	1971
JURKOWITZ, EUGENE L.	1968
KAHRMANN, ROBERT G.	1970
KAVANAUGH, WILLIAM A	1955
KEIM, WILLIAM E.	1966
KELLER, LOUISE J.	1969
KELLY, MICHAEL V.	1968
KELLY, WILLIAM T.	1966
KINGERY, LYLE M.	1963
KINT, KULAI H.	1933
KRAFT, RICHARD H.	1967
LAHREN, JAMES A.	1970
LANGERMAN, PHILLIP D	1968
LAUBENTHAL, CRAIG D.	1969
LOPEZ, GUILLERMO	1970
LYNN, WILLIAM L.	1968
MALKAN, JEROME M.	1967
MANESS, MARION T.	1969
MANSFIELD, WESLEY B.	1970
MARBURGER, EDWARD F.	1948
MARRAH, JOHN A.	1970

MARTIN, WALDO D.	1970
MAYFIELD, WINIFRED A	1970
MC DOWELL, LEONARD C	1964
MC GAW, SIDNEY E.	1952
MEHAIL, SPIRO	1971
MELLINGER, BARRY L.	1972
MILLER, DAVID H.	1971
MILLER, JAMES A.	1971
MILLER, MARK F.	1967
MILLER, MURRAY L.	1947
MOHEE, N. F.	1968
MONGERSON, MARTIN D.	1968
MONTELLO, PAUL A.	1968
MOORE, ALFRED H.	1954
NEEDHAM, RAYMOND J.	1969
NEFF, NELSEN V.	1971
NELSON, LLOYD P.	1955
NEWBURY, DAVID N.	1967
NIENHAUS, BERNARD J.	1971
NOVOSAD, JOHN P.	1971
OLSEN, EDWARD G.	1937
OLSEN, EUGENE A.	1968
PARKS, GERALD A.	1969
PATE JR, DOVE H.	1970
PAYNE, AM V.	1965
PELLEGRIN JR, JOSEPH	1971
PHARES, GAIL J.	1962
PORTER, HAROLD W.	1948
REIMER, MILTON K.	1968
RESNICK, HAROLD S.	1970
RIDLEY JR, WILLIAM H	1970
ROBERTSON, LYLE R.	1968
ROBERTS, NORMAN N.	1967
ROSIN, WILLIAM J.	1969
ROSS, B. JOHN	1971
ROSS, HERBERT J.	1970
RUSSELL, SAMUEL E.	1966
RYAN, CHESTER M.	1963
SACA, PABLO M.	1971
SANDBERG, NINA M.	1968
SCHAEFFER, CARL J.	1959
SCHMIDT, HOWARD R.	1971
SCHOLES, CHARLES E.	1968
SCHREIBER, ERNEST	1967
SCHREIBER, ERNEST	1967
SECHREST, CHARLES H.	1953
SELF JR, JOHN M.	1967
SHANTHAMALLAPPA, B.	1950
SHAW, GERALD H.	1968
SHIBLER, HERMAN L.	1941
SLATTERY, RAYMOND A.	1969
SMALLEY, LEE H.	1962
SMITH, DARRELL L.	1969
SMITH, FARMER S.	1969
SPENCE, WILLIAM P.	1957
STADT, RONALD W.	1962
STANGLE, PAUL L.	1967
STEPHENS, GEORGE T.	1969
STOKES, VERNON L.	1971
SVENDSEN, ETHAN A.	1961
TATSCH, CLINTON E.	1970
TEMPLE, CHARLES M.	1970
UXER, JOHN E.	1967
VAN DYKE, ARVID W.	1970
WAITTKUS, LORIN V.	1971
WALLIS, CARL R.	1969
WALL, GUSTAVE S.	1951
WARDWELL, WAYNE D.	1950
WEAGRAFF, PATRICK J.	1971
WEIR, THOMAS S.	1955
WELSH, BARTON W.	1971
WENTZ, CHARLES H.	1969
WIJEYEWARDENE, JALUT	1960
WILBER, GEORGE D.	1941
WILBUR, LOUISE	1931
WILLIAMS, ROBERT T.	1969
WILLS, VERNON L.	1965
WILSON, WADE	1954
WINEGAR, GARY H.	1969
WITHERSPOON, EVERETT	1971
WOLLINGTON, JAMES M.	1965
WOODEN, RALPH L.	1956
WORTHINGTON, KENT L.	1967
WRIGHT, JERAULD B.	1969
WRIGHT, OSCAR W.	1954
YOUMANS, CHARLES V.	1955
YOUNG, DARIUS R.	1968
ZABCIK, CALVIN L.	1969
ZWEIBEL, MALCOLM C.	1968

PRSH - PRIVATE SCHOOLS

AUTHOR	DATE
BIBB, HERMAN L.	1952
BRENHOLTZ, HAROLD R.	1957
COX, STEVEN G.	1968
FURIA, JOHN J.	1930
JOHNSON, ELOUISE E.	1967
JORDAN, THOMAS F.	1942
RUBIN, MORRIS M.	1950
SCHURE, ALEXANDER	1950
SHRADER, ROBERT F.	1967
UNDERHILL, CHARLES M	1968

PRTR - PERSONALITY TRAITS

AUTHOR	DATE
ARMBRUST, ROBERT W.	1969
ATHANASIOU, ROBERT B	1969
AUCKER, JOHN R.	1970
BARANYAI, WILLIAM A.	1955
BARNETTE JR, W. L.	1949
BARNETT, LEONARD J.	1969
BEACH, CHARLES K.	1941
BEHM, HARLEY D.	1967
BENDIX, JOHN L.	1965
BIRNBACH, SIDNEY B.	1948
BOHN, RALPH C.	1957
BOVENIZER, ELDRED R.	1968
BRACEY, HYLER J.	1969
BRADSHAW, OTTIE L.	1968
BRINKMAN, FRED J.	1970
CLAWSON, LA VERE E.	1967
COMBS, STANLEY L.	1948
COOVER, SHRIVER L.	1941
CRIST, LEROY	1961
CURTIS, BYRON W.	1968
D COSTA, AYRES G.	1968
DENOVA, CHARLES C.	1968
DENSLEY, KENNETH G.	1967
DOERR, JOHN J.	1967
EISENBERG, WILLIAM L	1947
ELLIOTT, BURTON L.	1971
ERICKSON, RICHARD C.	1966
FEATHER, DON B.	1949
FLEMING, JOSEPH W.	1937
FRAZIER, WILLIAM D.	1966
FUEG, HENRY L.	1971
GIACHINO, JOSEPH W.	1949
HALL, DAVID H.	1971
HANKIN, EDWARD K.	1947
HASKELL, ROGER W.	1969
HELBERG, DONALD H.	1969
HENAK, RICHARD M.	1971
JACKSON, ROSS P.	1967
JAGEMAN, LARRY W.	1968
JELDEN, DAVID L.	1971
JOHNSON, DONALD H.	1966
KOUTNIK, PAUL G.	1968
LANMAN, RICHARD W.	1953
LATHROP, ROBERT C.	1969
LOCKETTE, RUTHERFORD	1956
LUTZ, RONALD J.	1969

MAXON, LLOYD M.	1970
MC CABE, FRED J.	1970
MEDSKY, PAUL R.	1967
MESSMAN, WARREN B.	1963
MILLER, AARON J.	1966
MILLER, L. PAUL	1939
MONROE, H. B.	1960
MORGAN, J. B.	1961
MORTON, BERRY E.	1950
NELSON, HILDING E.	1962
NELSON, REX A.	1963
NICHOLS JR, GEORGE V	1971
NICHOLSON, DAVID H.	1948
OMAN, RONALD N.	1971
OPPELT, MARION O.	1967
PALOW, WILLIAM P.	1969
PASSMORE, JAMES L.	1968
PEARSON, WILLIAM W.	1967
PHILLIPS, DONALD S.	1968
POLK, HAROLD J.	1969
PORTER, CHARLES B.	1957
POWERS, G. PAT	1961
PRATZNER, FRANK C.	1969
PUGH, DWIGHT A.	1969
RANDLEMAN, ROBERT R.	1961
REAMS, JAKE W.	1963
REISENGER, RAYMOND H	1970
RICE, DON A.	1969
SANDERSON, HERBERT	1948
SANDMAN, CHARLES W.	1969
SCHELLER, THOMAS G.	1967
SHEMICK, JOHN M.	1960
SHORE JR, THOMAS C.	1970
SIMPSON, JAMES L.	1970
SMITH, ROBERT E.	1928
SOLTYS, ROBERT G.	1971
STONE, THOMAS C.	1969
STOUGHTON, ROBERT W.	1955
STRICKLAND, THOMAS W	1959
SULLIVAN, THOMAS W.	1967
THOMAS, CHARLES L.	1964
TROOBOFF, BENJAMIN M	1968
TSUJI, THOMAS T.	1967
TURNER, MERVYN L.	1968
ULLERY, JESSE W.	1971
VACEK, WILLIAM L.	1962
WANGER, RUTH	1971
WHEELER JR, CHARLES	1967
WISEMAN, EMORY E.	1969
WITT, HENERY F.	1971
WYNNE, ROBERT L.	1968
YEE, JOOST	1965
ZIMMER, THEODORE A.	1969

PSYC - PSYCHOLOGY

AUTHOR	DATE
BARLOW, GARY C.	1967
BARNETTE JR, W.L.	1949
BARTLETT, WILLIS E.	1967
BEHM, HARLEY D.	1967
BIRNBACH, SIDNEY B.	1948
BOHN, RALPH C.	1957
BORTZ, RICHARD F.	1967
BRACEY, HYLER J.	1969
BRADSHAW, OTTIE L.	1968
CLAWSON, LA VERE E.	1967
COCHRAN, GEORGE C.	1967
DENOVA, CHARLES C.	1968
DENSLEY, KENNETH G.	1967
DUTT, KARL F.	1969
EISENBERG, WILLIAM L.	1947
ERICKSON, RICHARD C.	1966
EVANS, RUPERT N.	1950
FEATHER, DON B.	1949
FOLTMAN, FELICIAN F.	1950
FUZAK, JOHN A.	1948
HANKIN, EDWARD K.	1947
HASKELL, ROGER W.	1969
HELBERG, DONALD H.	1969
HILL, JAMES L.	1953
JOHNSON, DONALD H.	1966
JOHNSON, ROBERT D.	1968
KARR, DONALD L.	1969
KEIM, LAWRENCE	1966
KRANTZ, MATTHEW B.	1970
LANMNA, RICHARD W.	1953
LATHROP, ROBERT C.	1969
LOEPP, FRANZIE L.	1970
LUTZ, RONALD J.	1969
MADDOX, MARION E.	1951
MAYS, WILLIAM A.	1954
MESSMAN, WARREN B.	1963
MEYER, HARVEY K.	1951
NELSON, ORVILLE W.	1967
OPPELT, MARION O.	1967
PALOW, WILLIAM P.	1969
PASSMORE, JAMES L.	1968
PEARSON, WILLIAM W.	1967
PRITCHARD, MIRIAM C.	1937
PUGH, DWIGHT A.	1969
RICE, DON A.	1969
RISHER, CHARLES G.	1953
ROLLINGS, JAMES W.	1967
RUGGLES, STANFORD D.	1969
SANDERSON, HERBERT	1948
SANDMAN, CHARLES W.	1969
SHEMICK, JOHN M.	1960
SHERCK, CHARLES P.	1969
SHIH, WEI-TUN	1969
SHORE JR, THOMAS C.	1970
SMITH, KAY H.	1962
STOUGHTON, ROBERT W.	1955
STRICKLAND, THOMAS W.	1959
STUART, IRVING R.	1951
THIEL, DONALD W.	1959
THOMAS, CHARLES L.	1964
THOMAS, MAURICE G.	1968
TICHENOR, HAROLD D.	1967
TSUJI, THOMAS T.	1967

READ - READING

AUTHOR	DATE
BROWNRIGG, JERRY R.	1962
DRAKE, LAWRENCE C.	1966
DREW, ALFRED S.	1962
EVEN, MARY J.	1971
HANSBURG, HENRY	1935
HOUSEHOLDER, DANIEL	1963
HOUSKA, JOSEPH T.	1971
LEASE, ALFRED A.	1964
LOPEZ, DANIEL C.	19
MASON, EMMETT E.	1969
MC CAIN, JERRY C.	1959
MC KELL, WILLIAM E.	1970
MC KELL, WILLIAM E.	1970
MILLER, WILBUR R.	1960
RANDLEMAN, ROBERT R.	1961
RICHARDS, KENVYN B.	1970
WOLFE, JAMES M.	1970
YOUNG, TALMAGE B.	1953

RECR - RECREATION

AUTHOR	DATE
BIEDLER, JOHN S.	1958
PATE JR, DOVE H.	1970

RECT - RECRUITMENT

AUTHOR	DATE
CONLEY, FRANKLIN	19
CRIST, LEROY	1961
FOLEY JR, DENIS J.	1967
FRISBY, RUSSELL C.	1968
GERBRACHT, CARLTON J	1949
HAGEMEYER, RICHARD H	1960
HULLMAN, DON H.	1971
JAHRMAN, QUAIN K.	1964
KREJOIE, ROBERT V.	1968
LARSON, IRVING W.	1969
MALLARY, BENJAMIN E.	1932
MEHALLIS, GEORGE	1963
MELLMAN, ROBERT A.	1957
MESSERSCHMIDT, DALE	1967
NEUFELD, JACOB A.	1968
O DELL, ROBERT D.	1963
RESSLER, RALPH	1966
RUTHERFORD, WILLIAM	1962
SCHERER, HARLAN L.	1960
SCHILL, WILLIAM J.	1961
SENTENEY, GEORGE W.	1955
SIMONS, ROBERT M.	1969
SIRO, EINAR E.	1949
SOURS, CHARLES F.	1969
WALDORF, ROBERT J.	1971
WEIR, ELDON L.	1970
WIERSTEINER, SAMUEL	1970
WINSEMAN JR, ALBERT	1969
WOLD, KENNETH M.	1961
WOOD, GRANT R.	1970

RELG - RELIGION

AUTHOR	DATE
UNDERHILL, CHARLES M	1968

RES - RESEARCH

AUTHOR	DATE
BAILEY, GERALD D.	1964
BRITT, ROBERT D.	1966
FEIRER, JOHN L.	1946
KING, THOMAS G.	1958
LINDBECK, JOHN R.	1958
MAC LEAN JR, C. B.	1963
NELSON, ORVILLE W.	1967
ROSS, RAYMOND J.	1966
TALKINGTON, JOE E.	1962

SAFE - SAFETY

AUTHOR	DATE
ANDERSON, KERMIT P.	1967
BECKHAM, JOE W.	1969
BIRNBACH, SIDNEY B.	1948
BRACEY, HYLER J.	1969
BURGHARDT, WILLIAM F	1950
CHARLESWORTH, KENNET	1968
COBURN, JAMES M.	1969
COMSTOCK, THOMAS W.	1969
CRESSMAN, PAUL L.	1934
ESTABROOKE, EDWARD C	1939
ESTABROOKE, PAUL L.	1939
FUGAL, GLEN R.	1950
GILLILAND SR, LONNIE	1955
HAGGLUND, GEORGE S.	1966
HESS, HARRY L.	1969
HOPPER, CHARLES H.	1971
HUGHES, WAYNE P.	1942
HUMBLE, MILFORD K.	1937
KASSAY, JOHN A.	1970
KIGIN, DENIS J.	1959
LOCKE, LEWIS A.	
LOVELESS JR, SIDNEY	1969
NICHOLS JR, GEORGE V	1971
PINCKNEY, CHARLES W.	1953
PRUST, ZENAS A.	1964
WALLACE, NORMAN E.	1968
WILLIAMS, WILLIAM A.	1959

SCIN - SCIENCE

AUTHOR	DATE
ADAMS, JOHN V.	1947
BUXTON, ROBERT E.	1960
CHAMPION, GEORGE	1965
COLEMAN, WAYNE D.	1967
DOWNS, WILLIAM A.	1968
EISS, ALBERT F.	1954
ENGELBREKTSON, SUNE	1961
GERNE JR, TIMOTHY A.	1967
GRIFFIN, RAYMOND V.	1965
GROTE, CHARLES N.	1960
JENKINS, REESE V.	1966
KLEINBACH, MERLIN H.	1959
KLEIN, CHARLES T.	1942
KOHLER, RICHARD C.	1951
LJOSTAD, RODNEY A.	1965
NOLL, ROBERT F.	1967
PERSHERN, FRANK R.	1967
REMICK, EDWARD L.	
RONEY, MAURICE W.	1964
SHOEMAKER, BYRL R.	1957

SELC - SELECTION

AUTHOR	DATE
AKEY, WAYNE W.	1952
ATHANASIOU, ROBERT B	1969
BECK, RICHARD W.	1971
BENSON, WILLARD A.	1959
COHEN, JERRY M.	1969
CUMMINS, CARL C.	1957
DAUGHERTY, RONALD D.	1971
DODGE, ARTHUR F.	1935
DOUTT, RICHARD F.	1965
EHRENBORG, JOHN D.	1963
FLEMING, JOSEPH W.	1937
FOLEY JR, DENIS J.	1967
FULLER, FOSTER D.	
HAKANSON, JOHN W.	1967
HENRY, GEORGE F.	1954
HULLMAN, DON H.	1971
JAHRMAN, QUAIN K.	1964

JARVIS, JOHN A.	1953
JOHNSON, MARVIN E.	1959
JOHNSON, RUFUS G.	1949
JOHNSTON, WALLACE L.	1968
JONES, GUY R.	1971
KETCHAM, GEORGE W.	1963
KUNTZ, ELMER L.	1968
MAC DONALD, MANLEY E	1944
MALLARY, BENJAMIN E.	1932
MC KENZIE, CHARLES R	1971
MOUTOUX, ALFRED C.	1948
NEUFELD, JACOB A.	1968
O DELL, ROBERT D.	1963
SCHERER, HARLAN L.	1960
SCHILL, WILLIAM J.	1961
SIRO, EINAR E.	1949
VYAS, PREMILA H.	1967
WILMOTT, JOHN N.	1941
WINDLE, JIM L.	1968
WINSEMAN JR, ALBERT	1969
WITT, NORMAN E.	1969
WOLD, KENNETH M.	1961
WOOD, GRANT R.	1970
YUNG, JOHN E.	1965

SELF - SELF-EVALUATION

AUTHOR	DATE
HARRISON JR, PAUL E.	1955
HARRIS, JAMES N.	1969
KERWOOD, ROBERT V.	1967
LANDECKER, LOUIS	1969
LINNICK, IDA	1949
SIMICH, JACK	1965
WILBER, GEORGE O.	1941

SHET - SHEET METAL

AUTHOR	DATE
SNITZ, RUBEN H.	1931

SKIL - SKILL

AUTHOR	DATE
ALLEN, JOHN C.	1969
ARONSON, NORMA	1967
BECKER, DEROLD W.	1969
BIEKERT, RUSSELL G.	1971
BLANKENBAKER, EDWIN	1970
BLANKENBAKER, E. K.	1970
BORTZ, RICHARD F.	1967
CLENDENNING, LEE R.	1972
CUSHING, NELSON N.	1971
D AMBROSIO, VINCENT	1969
DEADY, JOHN J.	1970
DEAN, ROBERT D.	1959
DENOVA, CHARLES C.	1968
DOTY, CHARLES R.	1968
ESTLE, EDWIN F.	1966
FLUG, EUGENE R.	1967
GRUNWALD, WALTER	1968
GUNTHER, THERESA C.	1931
HAILES, CHARLES W.	1971
HANSON, ROBERT R.	1970
HENAK, RICHARD M.	1971
HEYEL, CLARENCE L.	1967
HOFER, ARMAND G.	1963
HOUSE, ELAINE	1970
HURLEY, CARL E.	1971
IRVINE, FLEET R.	1968
JAGEMAN, LARRY W.	1968
JOLLY, FRANK H.	1970
KASSAY, JOHN A.	1970
LICHTBLAU, LEONARD R	1958
LINDAHL, LAWRENCE G.	1944
LOCKETTE, RUTHERFORD	1956
LOW, FRED G.	1963
LUTZ, RONALD J.	1969
MANCHAK, PAUL J.	1965
MARTINEZ, PETE	1970
MEYER, JOHN M.	1969
MIDDLETON, WILLIAM H	1962
MILLER, JAMES A.	1971
MILLS, BOYD C.	1967
NANNAY, ROBERT W.	1970
NELSON, ORVILLE W.	1967
NISH, DALE L.	1967
NORTON, ROBERT E.	1967
OAKS, MERRILL M.	1970
OLSON, DAVID O.	19
ORR, WILLIAM H.	1970
REBHORN, ELDON A.	1972
RICHARDSON, ROBERT B	1967
RIDLEY JR, WILLIAM H	1970
ROWLETT, JOHN D.	1960
SCHACHT, ROBERT C.	1971
SEIGLER, CLAUDE I.	1970
SNYDER, VANCE B.	1960
SOMMER, SEYMOUR A.	1971
STANTON, MILDRED B.	1938
SWANSON, RICHARD A.	1968
THOMAS, MAURICE G.	1968
WAISNER, GARY L.	1970
WILLEMS, ALVIN E.	1970
WORTHINGTON, ROBERT	1958

STTG - STUDENT TEACHING

AUTHOR	DATE
ANDERSON, W. C.	1954
BEED, GALER W.	1970
CHRISTOFFEL, FREDERI	1960
DRAWDY, LARRY A.	1971
DRAZEK, STANLEY J.	1950
HUSS, WILLIAM E.	1951
JOHNSON, VERNER B.	1966
LEAVITT, WILLIAM C.	1969
MALEY, DONALD	1949
MILLS, EARL S.	1971
POLESZAK, LEONARD J.	19
SARGENT, WILLIAM T.	1956
THOMAS, CHARLES L.	1964

SUPR - SUPERVISION

AUTHOR	DATE
BLANTON, LLOYD H.	1970
BOWDOIN, PAUL	1966
BRANDON, GEORGE L.	1952
CHRISTOFFEL, FREDERI	1960
COTRELL, CALVIN J.	1960
CRESSMAN, PAUL L.	1934
CRUDDEN, PAUL B.	1944
EDWARDS, JOHN T.	1970
EISENBERG, WILLIAM L	1947
EISS, ALBERT F.	1954
FEGAN, HAROLD J.	1971
FOLTMAN, FELICIAN F.	1950
GILBERT, HAROLD G.	1955
HAMMACK, CHARLES R.	1967
HEGER, ROBERT J.	1968
JOHNSON, VERNER B.	1966
KOHRAM, GEORGE E.	1952
LESTER, SEELIG L.	1944
LINE, JOHN D.	1971
LONG, GILBERT A.	1970
LOVELESS JR, SIDNEY	1969
MAGISOS, JOEL H.	1968

MALIK, JOSEPH A.	1968
MANSFIELD, WESLEY B.	1970
MARSHALL, CHARLES R.	1971
MC CRACKEN, JOHN D.	1970
MC ROBBIE, J. M.	1963
MERTZ, OTTO	1954
MICHEELS, WILLIAM J.	1941
MILLER, JACK D.	1971
OLIVER, WILMOT F.	1967
OLIVER, WILMOT F.	1967
PARNES, SIDNEY J.	1954
PEARSON, WILLIAM W.	1967
PETERS, DONALD F.	1959
POLK, HAROLD J.	1969
RICE, DICK C.	1966
RIETH, CLAUDE E.	1966
RIMLER, GEORGE W.	1969
ROWEN, MILTON S.	1969
SARGENT, WILLIAM T.	1956
SCHANK, KENNETH L.	1965
SCHOEPPLER, JACOB	1958
SCHORLING, HORACE O.	1950
SCHOTT, WILLIAM J.	1954
SECHREST, CHARLES H.	1953
SECKENDORF, ROBERT S	1960
SMITH, FARMER S.	1969
SMITH, IRVING G.	1969
SOULE, DAVID H.	1966
STANGER, NORMAN R.	1967
STEER, RALPH V.	1959
STEVENSON, JAMES E.	1953
STEWART, WILLIAM J.	1968
TATE, HAROLD S.	1951
TAXIS, DAVID O.	1962
TUXHORN, SCOTT E.	1967
VINEYARD, BENNY S.	1962
WALKER, LLOYD R.	1946
WARD, DARRELL L.	1971

TCED - TECHNICAL EDUCATION

AUTHOR	DATE
AGNOR, HERBERT E.	1970
ALDRICH, TERRY M.	1969
ANDERSON, RICHARD B.	1970
ANDREWS JR, JOE R.	1968
ANDREYKA, ROBERT E.	1969
ARMSTRONG, JAMES A.	1968
ARMSTRONG, WILLIAM H	1967
BARBER, CARL S.	1967
BAS, RADHA C.	1950
BATES, WILFRED M.	1968
BEACH, CHARLES K.	1941
BEED, GALER W.	1970
BESTOR, ROLLIE R.	1969
BETTIS, LLOYD E.	1971
BOAZ, HOLLAND E.	1965
BOSS, RICHARD D.	1968
BOTTOMS, JAMES E.	1965
BOYER, CAROLINE K.	1966
BRADSHAW, OTTIE L.	1968
BRAME, WILLIAM E.	1967
BRAUN, CHARLES A.	1970
BRILEY, FRANK E.	1967
BROE, JOHN R.	1962
BROWN, GEORGE J.	1960
BROWN, MARILYN K.	1970
BRUE, JAMES E.	1969
BRUSH JR, GEORGE W.	1969
BURKERT, WILLIAM G.	1970
BUZZELL, CHARLES H.	1970
CHAMBLISS, KINNETH M	1966
CHAVOUS, ARTHUR M.	1945
CHUANG, YING C.	1967
CORFIAS, JOHN C.	1967
COTRELL, CALVIN J.	1960
COTTON, GEORGE R.	1944
CROMER, CHALMERS A.	1970
CRUDDEN, PAUL B.	1944
DAINES, JAMES R.	1968
DANIELS, BLAIR E.	1937
DAVIDSON, JOHN E.	1968
DAVIS, WARREN C.	1936
DEADY, JOHN J.	1970
DILIBERTO, MENNO	1968
DUGGER, CECIL W.	1968
DUKES, GLENN F.	1969
EICHER, ROBERT S.	1968
ELLINGTON, MARK	1936
ELLIOTT, EARL S.	1967
ELMGREN JR, G. THEOD	1963
FAULDS, VINCENT R.	1956
FISHER, RICHARD E.	1956
FLUCK, BRYAN V.	1970
FOLEY JR, JOHN P.	1966
FOSTER, ROBERT J.	1969
FRYE, ROYE M.	1963
FURLONG, JOHN	1957
GIANINI, PAUL C.	1968
GILLIE SR, ANGELO C.	1967
GLAU, JON E.	1970
GOISHI, FRANK H.	1970
GORDON, KENNITH G.	1971
GRAY, KENNEY E.	1970
GREER, JOHN S.	1967
GUDITUS, CHARLES W.	1965
HACKETT, EDWARD V.	1967
HALL, JAMES F.	1954
HAMPTON, THOMAS E.	1950
HANCOX, FREDERICK J.	1969
HANSEN, RICHARD H.	1967
HANSSON, KENNETH S.	1966
HARLAN, OWEN	1953
HENRY, GEORGE F.	1954
HERMAN, JAMES A.	1969
HILL, RICHARD E.	1970
HIRSCHI, HARVEY C.	1969
HOFER, JARREL	1969
HOLMEN, HOLGER E.	19
HOPPER, CHARLES H.	1971
HOWE, TREVOR G.	1963
HULLMAN, DON H.	1971
HUNTER, ROBERT F.	1970
HYDE, ELDON K.	1968
IVES, QUAY D.	1971
JACKEY, DAVID F.	1933
JACKSON, THOMAS A.	1962
JOHNSON, HARRY L.	1955
JOHNSON, WAYNE C.	1969
JOHNSTON, GARVIN H.	1968
JORDAN, KENNETH F.	19
KARR, DONALD L.	1969
KAVIEFF, MELVIN C.	1961
KAZANAS, HERCULES C.	1967
KEIM, WILLIAM E.	1966
KOEHLER, EVERETT E.	1959
KOHL, ERNEST O.	1949
KREJOIE, ROBERT V.	1968
KRUBECK, FLOYD E.	1954
KRUSKOP, LEROY L.	1969
LAMBERT, JAMES H.	1940
LANDIS, RUSSELL H.	1940
LAND, MING H.	1970
LANGERMAN, PHILLIP D	1968
LANGFORD, AL G.	1969
LANMAN, RICHARD W.	1953
LARSON, MILTON E.	1965
LAWS, NORMAN G.	1966
LEFFARD, WARREN L.	1969
LEVENSON, WILLIAM B.	1937
LEWIS, MYRON E.	1970
LITTLE, RICHARD L.	1968
LITTRELL, JOSEPH J.	1958
MANESS, MARION T.	1969
MANGANELLI, FRED D.	1959
MAXON, LLOYD M.	1970
MC CALLUM, HARRY N.	1967
MC CRACKEN, JOHN D.	1970
MC ELHENY, JOHN R.	1960
MEHAIL, SPIRO	1971
MELLINGER, BARRY L.	1972
MESSERSCHMIDT, DALE	1967
MEYERS, LARRY D.	1968
MIDILI, JOHN A.	1970

MILLER, AARON J.	1966
MILLER, MARK E.	1967
MOORE, LELAND B.	1970
MORGAN, DARYLE W.	19
NEEDHAM, RAYMOND J.	1969
NESTEL, GERALD E.	1970
NOLL, ROBERT F.	1967
NORRIS, MARSENA M.	1968
NORTON, ELIZABETH N.	1970
O TUEL, MAXCY B.	1969
OLSEN, EUGENE A.	1968
OLSON, HERBERT A.	1970
PAWELEK, ALAN R.	1950
PERKINS, LAWRENCE H.	1967
PHALLEN, CHARLES W.	1958
PHILLIPS, DONALD S.	1968
PORTER, CHARLES B.	1957
PREITZ, CLARENCE H.	1969
RATCHLE, HENRY F.	1969
REIMER, MILTON K.	1968
RELYEA, GLADYS M.	1937
RIMLER, GEORGE W.	1969
RONEY, MAURICE W.	1964
ROSIN, WILLIAM J.	1969
RUNNALLS, JAMES J.	1965
RYAN, ROBERT J.	1964
SALMON, DANIEL A.	1965
SALTEN, DAVID G.	1944
SANDBERG, NINA M.	1968
SEIDEL, JOHN J.	1951
SELMAN, JAMES W.	1967
SHAFER, CARL I.	1961
SHERRELL, EUGENE G.	1969
SHRADER, ROBERT F.	1967
SIMPSON, JAMES L.	1970
SLATTERY, RAYMOND A.	1969
SMITH, BRANDON B.	1968
SMITH, HERBERT F.	1940
SOURS, CHARLES F.	1969
STALLINGS, DANIEL N.	1969
STAPLES, JAMES R.	1970
STEGEMAN, ARTHUR L.	1957
STEPHENS, GEORGE T.	1965
STILLERMAN, MANUEL	1970
STONE, THOMAS C.	1969
SULLIVAN, THOMAS W.	1967
TATSCH, CLINTON E.	1970
TAYLOR JR, HOUSTON	1968
THORPE, CLAIBURNE B.	1969
TICHENOR, HAROLD D.	1967
TIERNEY, WILLIAM F.	1952
TREGO, JOHN W.	1958
TURNER, ROBERT E.	1957
VALENTINE, IVAN E.	1969
VAN DERSLICE, JOHN F	1967
VANHERCK, DON V.	1966
VASEK, RICHARD J.	1967
VON STROH, GORDON E.	1968
VYAS, PREMILA F.	1967
WARDWELL, WAYNE D.	1950
WEBER, EARL M.	1961
WEEDE, GARY D.	1967
WHITE, LELAND W.	1966
WHITNEY, LARRY J.	1967
WIGEN, RAY A.	1957
WILLEMS, ALVIN E.	1970
WILSON, ROGER J.	1970
WINSEMAN JR, ALBERT	1969
WOFFORD, THOMAS B.	1963
WOLD, KENNETH M.	1961
WOOLDRIDGE, ROBERT F	1961
ZWEIBEL, MALCOLM C.	1968

TECH - TECHNOLOGY

AUTHOR	DATE
BARICH, DEWEY F.	1961
BEATTY, CHARLES J.	1967
BLOCK, MURRAY H.	1953
BRAME, WILLIAM E.	1967
BRUECKMAN JR, JOHN C	1969
CALEY, PAUL C.	1969
CUMMINGS, LAWRENCE J	1969
FECIK, JOHN T.	1970
FOSTER, ROBERT J.	1969
FRITZ, ROBERT C.	1960
GAILEY, DAVID S.	1969
GALLUP, LELLAND L.	19
GRAY, THOMAS E.	1970
GYSLER, RANDOLPH L.	1971
HAMPTON, THOMAS E.	1950
HANSEN, JOHN R.	1970
HAUSER, ROGER E.	1971
HUNTER, ROBERT F.	1970
JENKINS, REESE V.	1966
KAPLAN, WILLIAM A.	1970
KEIM, LAWRENCE	1966
KRAFT, RICHARD H.	1967
KURIEN, CHEMPALATHAR	1967
LARSON, DELMAR L.	1964
MANGANELLI, FRED D.	1959
MAUER, DONALD E.	1966
METZLER, JOHN H.	1970
MIDILI, JOHN A.	1970
MILLER, MARK E.	1967
MONGERSON, MARTIN D.	1968
MORGAN, DARYLE W.	19
NEUBAUER, GERHARDT W	1956
OLSON, DELMAR W.	1957
OTTERSON, PEDER A.	1969
PIERSALL, ARNOLD C.	1964
QUIER, GEORGE T.	1969
RAY, REX E.	1966
RELYEA, GLADYS M.	1937
RINEHART, RICHARD L.	1966
RUNNALLS, JAMES J.	1965
SANDBERG, NINA M.	1968
SHARMA, BALDEV R.	1967
SHEPARD, JON M.	1968
SIMONS, JEROLD J.	1967
SONNY, JACOB	1971
STADT, RONALD W.	1962
STEPHENSON, DONALD J	19
TREGILGUS, EARL P.	1954
VAN GIGCH, JOHN P.	1968
WRIGHT, JERAULD B.	1969
ZAREISN, SOLEIMAN	1969

TEED - TEACHER EDUCATION

AUTHOR	DATE
ALLEN, WILLARD A.	1963
ANDERSON, LOWELL D.	1969
ANDERSON, W. C.	1954
ANDREYKA, ROBERT E.	1969
ARNOLD, DANIEL S.	1968
ASHLEY, LAWRENCE F.	1936
BAAB, CLARENCE T.	1950
BAILEY, DONALD A.	1970
BAKER, GEORGE L.	1970
BALDWIN, THOMAS R.	1971
BARANYAI, WILLIAM A.	1955
BATESON, ROBERT E.	1951
BEARDEN, WILLIAM W.	1967
BEDNAR, ERNEST G.	1955
BEED, GALER W.	1970
BEKTON, WILLIAM E.	1965
BELL, CHARLES L.	1964
BENDIX, JOHN L.	1965
BENSON, WILLARD A.	1959
BERGENGREN JR, ROY F	1953
BOWMAN, JAMES F.	1953
BRANDON, GEORGE L.	1952

BRANTNER, SEYMOUR T.	1962
BRENCKLE, AUTHUR G.	1968
BROWN, ROBERT D.	1955
BRO, RONALD D.	1971
BRUCE, PHILLIP L.	1964
CAIN, CECIL R.	1958
CAIN, JOHN N.	1970
CALLEN, LOUIS J.	1952
CAMERON, WALTER A.	1969
CARLSEN, DARVEY E.	1961
CAULEY, MICHAEL J.	
CHAMPION, GEORGE	1965
CHARLESWORTH, KENNET	1968
CHATFIELD, WILLIAM D	1955
COLEMAN, JAY M.	1971
COLEMAN, WAYNE D.	1967
CONLEY, FRANKLIN	19
COOVER, SHRIVER L.	1941
CORMACK, ROBERT B.	1970
CREMER, KENNETH D.	1970
CRIST, LEROY	1961
CROWDER, GENE A.	1968
CUMMINS, CARL C.	1957
DARDEN, BYRNES L.	1951
DAVIS, JIM L.	1966
DAWSON, KENNETH E.	1965
DEADY, JOHN J.	1970
DECK, WILLIAM L.	1955
DEVLIN, LEON G.	1971
DITLOW, GEORGE H.	1956
DOWNING, DALLAS L.	1941
DRAWDY, LARRY A.	1971
DRAZEK, STANLEY J.	1950
DUNCAN, GLENN S.	1950
DUNFEE, EMERY S.	1964
ECKER, LOUIS G.	1965
ENSMAN, LEO M.	1957
EPHRAIM, JOHN	1969
ERWIN, WILLIAM R.	1963
FAGAN, BERNARD T.	1970
FAHRLANDER, DANIEL C	1972
FEIRER, JOHN L.	1946
FENDLASON, DONALD W.	1969
FOLEY JR, DENIS J.	1967
FORREST JR, LEWIS C.	1970
FOSS, MAURICE F.	1958
FRANKSON, CARL E.	1948
FRYE, BILL J.	1971
FURLONG, JOHN	1957
GALLINGTON, RALPH D.	1947
GAVIN, GORDON O.	1968
GERBER, RUSSELL L.	1966
GERBRACHT, CARLTON J	1949
GHEEN, W. LLOYD	1970
GHEEN, WILLIAM L.	1970
GIACHINO, JOSEPH W.	1949
GIANINI, PAUL C.	1968
GIFFORD, KENNETH K.	1970
GILBERT, HAROLD G.	1955
GINTHER, RICHARD E.	1964
GLOGOVSKY, RONALD J.	1970
GREER, JOHN S.	1967
GRIFFIN, JAMES F.	1970
GUNDERSON, ORLEY D.	1971
GYSLER, RANDOLPH L.	1971
HAGEN, DONALD L.	1972
HAHN, BRUCE J.	1953
HAMILTON, ALLEN T.	1941
HAMMACK, CHARLES R.	1967
HAMMOND, HOWARD R.	1971
HANKAMMER, OTTO A.	1936
HARDER, JACOB D.	1970
HARLAN, OWEN	1953
HARRISON JR, PAUL E.	1955
HASTINGS, JAMES R.	1953
HEIN, EDWARD C.	1969
HELTON, H. L.	1958
HENRY, GEORGE F.	1954
HILL, CHARLES R.	1950
HISER, PAUL T.	1958
HOLMEN, HOLGER E.	19
HOOTS JR, WILLIAM R.	1966
HOOVER, ROGER L.	1967
HOUSE, ELAINE	1970
HUNTINGTON, HAROLD A	1940
HYDER, CARROLL R.	1971
JACKEY, DAVID F.	1933
JACKMAN, DUANE A.	1961
JANZEN, JOHN W.	1971
JELDEN, DAVID L.	1960
JENNINGS, GERALD L.	1968
JOHNSON, RAYMOND C.	1971
JOHNSON, ROBERT I.	1958
JOHNSON, RUFUS G.	1949
JOHNSTON, GARVIN H.	1968
KARR, DONALD L.	1969
KARR, DONALD L.	1969
KENNEKE, LARRY J.	1968
KERWOOD, ROBERT V.	1967
KING, FRANKLIN J.	1970
KIRBY, JACK	1965
KIST, KEVIN W.	1970
KLABENES, ROBERT E.	1971
KOEHLER, EVERETT E.	1959
KOHLER, RICHARD C.	1951
KOHLER, RODERICK G.	1952
KOO, PO-YEN	1968
KRUGER, JOHN M.	1971
KURTH, EDWIN L.	1955
KYNARD, ALFRED T.	1960
LAMBERT, JAMES H.	1940
LANDIS, RUSSELL H.	1940
LAPIDUS, GEORGE	1954
LARSON, CURTIS G.	1971
LARSON, IRVING W.	1969
LAUDA, DONALD P.	1966
LEASE, ALFRED A.	1964
LEAVITT, WILLIAM C.	1969
LINDAU, ORA F.	1968
LOATS, HENRY A.	1950
LOW, FRED G.	1963
LUCY, JOHN H.	1971
LUX, DONALD G.	1955
MALLARY, BENJAMIN E.	1932
MANESS, MARION T.	1969
MANSFIELD, ROBERT T.	1959
MARBURGER, EDWARD F.	1943
MAUER, DONALD E.	1966
MC CRACKEN, JOHN D.	1970
MELLMAN, ROBERT A.	1957
MESSERSCHMIDT, DALE	1967
MILLER, DUDLEY B.	1965
MILLER, JAMES A.	1971
MILLS, EARL S.	1971
MINELLI, ERNEST L.	1957
MINTON, GENE D.	1968
MITCHELL, JOHN	1954
MOELLER, CARL A.	1961
MONROE, H. B.	1960
MOONEY, JAMES J.	1967
MORELAND JR, HENRY C	1970
MORGAN, J. B.	1961
MOSLEY, SAMUEL N.	1970
MUSGROVE, WILLIAM R.	19
NAIR, RALPH K.	1950
NELSON, A. FRANK	1955
NICHOLS, DWIGHT W.	1955
NIELSEN, ERWIN E.	1969
NOVOSAD, JOHN P.	1971
OLIVER, WILMOT F.	1967
OLIVER, WILMOT F.	1967
OLSON, JERRY C.	1964
ORR, RALPH D.	1970
PAGE, CHARLES B.	1953
PALMER, HAROLD G.	1950
PARKS, DARRELL L.	1968
PARKS, GERALD A.	1969
PAWELEK, ALAN R.	1950
PAWELEK, STANLEY J.	1941
PAYNE, AM V.	1965
PEITHMAN, ROSCOE E.	1955
PFAHL, ALVIN K.	1970
POLESZAK, LEONARD J.	19
POWELL, PAUL E.	1954
POWERS, G. PAT	1961
POWER, ANDREW T.	1955
PROCTOR, BERNARD S.	1950

QUICK, OTHO J.	1954
RALSTROM, STIG E.	1969
RAU, GERALD N.	1971
RAY. J. EDGAR	1944
REAMS. JAKE W.	1963
REED. WILLIAM T.	1947
REESE. ROBERT M.	1954
RESSLER, RALPH	1966
ROBERTS, NORMAN N.	1967
ROBINSON, FRANK E.	1955
RUDISILL, ALVIN E.	1969
RUSSELL, ELLSWORTH M	1950
RUSSELL, GENE H.	1970
RUTHERFORD, WILLIAM	1962
RYAN. CHESTER M.	1963
RYAN. JAMES F.	1964
SANDERS, LEROY J.	1967
SARGENT, WILLIAM T.	1956
SAYOVITZ, JOSEPH J.	1955
SCHAEFER, CARL J.	1959
SCHERER, HARLAN L.	1960
SCHILL, WILLIAM J.	1961
SCOBEY, MARY-MARGARE	
SCOTT, CHARLES P.	1943
SECHREST, CHARLES H.	1953
SENTENEY, GEORGE W.	1955
SEXTON, WILLIAM E.	1965
SHACKELFORD, RICHARD	
SHRADER, ROBERT F.	1967
SILVIUS, HAROLD G.	1946
SIMONS, JEROLD J.	1967
SINGLETARY, THOMAS A	1968
SIRC, EINAR E.	1949
SMITH, IRVING G.	1969
SNITZ, RUBEN H.	1931
SOURS, CHARLES F.	1969
SPAZIANI, RICHARD L.	1972
SPRECHER, ROBERT E.	1970
STEPHENSON, LESLIE E	1958
STEVENSON, JAMES E.	1953
STONER, WILLIAM D.	1940
STOUGH, KENNETH F.	1968
STUTEVILLE, CLAUDE E	1971
SUTTON, FRED C.	1961
TAYLOR JR, HOUSTON	1968
THATCHER, GLENN M.	1970
THATCHER, GLENN M.	1970
THORNTON, ROBERT W.	1971
TOWERS, EDWARD R.	1956
TSUJI, THOMAS T.	1967
VAUGHN, MAURICE S.	1967
VOLK, VINCENT A.	1955
WALLIS, DONALD E.	1965
WALSH, JOHN P.	1958
WARGO, WILLIAM D.	1968
WATKINS, KENNETH E.	1966
WEBER, EARL M.	1961
WIERSTEINER, SAMUEL	1970
WILBER, GEORGE O.	1941
WILLIAMS, WILLIAM A.	1959
WILSON, ROGER J.	1970
WILSON, WADE	1954
WINTERS, KENNETH W.	1970
WOLANSKY, WILLIAM D.	1968
WOMMACK, CHARLES H.	1967
WOODY JR, EARL T.	1963

TEEF - TEACHER EFFECTIVENESS

AUTHOR	DATE
BARON, ANDREW W.	1968
BETTIS, LLOYD E.	1971
BURSE SR, LUTHER	1969
CAIN, JOHN N.	1970
CAMPBELL, GORDON	1969
CHRISMAN, JOSEPH P.	1970
DAWSON, KENNETH E.	1965
DENNISON, BOBBY	1970
DILIBERTO, MENNO	1968
FAGAN, BERNARD T.	1970

FERNS, GEORGE W.	1962
FINKELSTEIN, ABRAHAM	1959
FRANCHAK, STEPHEN J.	1971
GAINES, THOMAS R.	1955
GIACHINO, JOSEPH W.	1949
GIANINI, PAUL C.	1968
GROTE, CHARLES N.	1960
GRUNWALD, WALTER	1968
HAHN, MARSHALL S.	1967
HAMMACK, CHARLES R.	1967
HARRISON JR, PAUL E.	1955
JAMES, CALVIN E.	1963
JANZEN, JOHN W.	1971
JENKINS, JOHN D.	1969
JONES, CHARLES I.	1967
KAGY, FREDERICK D.	1959
KOHLER, RICHARD C.	1951
LOEPP, FRANZIE L.	1970
MANSFIELD, ROBERT T.	1959
MONROE, H. B.	1960
MORGAN, J. B.	1961
MORRILL, DAVID	1970
MUSGROVE, WILLIAM R.	19
NELSON, HILDING E.	1962
NELSON, HOWARD F.	1953
OAKS, MERRILL M.	1970
OLIVER, WILMOT F.	1967
OLIVER, WILMOT F.	1967
ORR, WILLIAM H.	1970
PFAHL, ALVIN K.	1970
POLESZAK, LEONARD J.	19
POWERS, G. PAT	1961
RALSTROM, STIG E.	1969
RAY, REX E.	1966
REBHORN, ELDON A.	1972
REESER, GEORGE W.	1971
REPP, VICTOR E.	1970
RISHER, CHARLES G.	1953
ROKUSEK, H. J.	1964
RUITER, WILLIAM W.	1971
SCHERER, HARLAN L.	1960
SEFFIELD, KERMIT A.	1949
SHULL, HOWARD I.	1969
STANFIELD, FOSTER A.	1971
SUMTER, PAUL E.	1969
SWERDLOW, ROBERT M.	1969
WALKER, JOE W.	1970
WILLIAMS III, WALTER	1963

TEST - TEST DEVELOPMENT

AUTHOR	DATE
ARMSTRONG, KENNETH E	1971
BECK, JOHN R.	1964
BIEWALD, EDWARD C.	1969
BLUM, ROBERT E.	1965
BOX SR, MARSHALL R.	1967
BURDETTE JR, WALTER	1955
BYROM, JOHN M.	1957
CASSIDY, EDWARD A.	1953
CHAMBERLAIN, DUANE G	1954
CLAWSON, LA VERE E.	1967
COBURN, JAMES M.	1969
COLGAN, FRANCIS E.	1967
COLLONS, RODGER D.	1967
COMER, JOHN C.	1970
COZZENS, CHARLES R.	1965
CRAWFORD, JOHN E.	1941
DAINES, JAMES R.	1968
DILIBERTO, MENNO	1968
DUENK, LESTER G.	1966
EHRENBORG, JOHN D.	1963
FACE, WESLEY L.	1963
GALLINGTON, RALPH O.	1947
GISRIEL, AUSTIN E.	1959
GRANEY, MAURICE R.	1942
HACKETT, EDWARD V.	1967
HARRIS, RICHARD	1970
HARRIS, ROBERT C.	1970

HASH, JOHN A.	1969
HENDRIX, WILLIAM F.	1967
HENNIG, JAMES F.	1970
HERRING, TOD H.	1962
HILL, EDWIN K.	1968
HOFER, JARREL	1969
JOHNSON, DOUGLAS H.	1969
KOUTNIK, PAUL G.	1968
LANMAN, RICHARD W.	1953
LEMONS, CLIFTON D.	1965
LOEPP, FRANZIE L.	1970
LOPEZ, DANIEL C.	19
LYONS, RICHARD A.	
MASSEY, HAL	1965
MC VICKER, HOWARD E.	1970
MORGAN SR, LEO D.	1966
MUDGETT, ALBERT G.	1958
NEWKIRK, LOUIS V.	1929
PETER, RICHARD F.	1970
PRATZNER, FRANK C.	1969
SALTEN, DAVID G.	1944
SANDMAN, CHARLES W.	1969
SHORE JR, THOMAS C.	1970
SILVER, HARVEY A.	1967
STANGL, OTTO A.	1968
STEPHENS, GEORGE T.	1969
STOKES, VERNON L.	1971
SWANSON, RICHARD A.	1968
TURNER, MERVYN L.	1968
WALLACE, NORMAN E.	1968
WARRICK, GLENN D.	19
WIGHTWICK, BEATRICE	1949
WILCOX, T. GLADE	1957
WRIGHT, LAWRENCE S.	1954
WYNN, PHILIP D.	1970
YOUNG, DARIUS R.	1968

T.I. - TRADES AND INDUSTRIES

AUTHOR	DATE
ADAMS, AARON F.	1961
ALKAN, OMER C.	1969
BARLOW, MELVIN L.	1949
BATESON, ROBERT E.	1951
BECK, RICHARD W.	1971
BOWMAN, ERNEST L.	1932
BOWSER, JAMES A.	1960
BROWN, MILTON T.	1948
CASSIDY, EDWARD A.	1953
CHAMBLISS, KINNETH M	1966
CONLEY, FRANKLIN	19
COOKE, ROBERT L.	1932
CRABTREE, JAMES S.	1967
CRUMPTON, CHARLES R.	1952
DOERR, JOHN J.	1967
DOWNING, DALLAS L.	1941
DROST, JIM L.	1970
EARHART, CECILIA R.	1946
EDMUNDS, NIEL A.	1969
ELLINGTON, MARK	1936
ENGLISH, ROBERT W.	1950
ESTABROOKE, EDWARD C	1939
FAGAN, BERNARD T.	1970
FURLONG, JOHN	1957
GRAINGE, FLOYD M.	1967
GUNDERSON, B. HARRY	1949
GUNDERSON, ORLEY D.	1971
HALL, JAMES F.	1954
HAMILTON, ALLEN T.	1941
HAMMER, GARLAND G.	1951
HAMMOND, HOWARD R.	1971
HANEY, PHILIP H.	1949
HARPER, HERBERT D.	1934
HARRIS, RICHARD	1970
HERMAN, JAMES A.	1969
HOERNER, JAMES L.	1969
JACKEY, DAVID F.	1933
JOCHEN, ALBERT E.	1947
JOHNSON, ELOUISE E.	1967
JOHNSTON, RICHARD E.	1971
KARR, DONALD L.	1969
KIGIN, DENIS J.	1959
KJOS, OSCAR E.	1954
KOHLER, RODERICK G.	1952
KYNARD, ALFRED T.	1960
LAND, SAMUEL L.	1931
LAUDA, DONALD P.	1966
LEONARD, REGIS L.	1950
MALLARY, BENJAMIN E.	1932
MATTSON, HOMER A.	1970
MC KELL, WILLIAM E.	1970
MELLMAN, ROBERT A.	1957
MENEGAT, PAUL A.	1953
MINTON, GENE D.	1968
MONEY, HOMER E.	1956
MORGAN, DARYLE W.	19
MOUTOUX, ALFRED C.	1948
OAKLEY, HUGH L.	1954
OLSEN, EDWARD G.	1937
ORR, RALPH O.	1970
OXLEY, VINCENT E.	1969
PEARSON, WILLIAM W.	1967
PRICE, DENNIS H.	1955
REESE, ROBERT M.	1954
RINCK, JOE A.	1968
ROSIN, WILLIAM J.	1969
RUBIN, MORRIS M.	1950
RYAN, CHESTER M.	1963
SCHILL, WILLIAM J.	1961
SCHURE, ALEXANDER	1950
SEARS JR, WILLIAM P.	1930
SEIDEL, JOHN J.	1951
SHOEMAKER, BYRL R.	1957
SOMMERFELD, DONALD A	1969
SPINTI, ROBERT J.	
STRONG, MERLE E.	1958
TATE, HAROLD S.	1951
TURNER, ERWIN	1956
URGELL, FRANCISCO C.	1941
VAN DUSEN, EDWARD B.	1949
VAN OOT, BENJAMIN H.	1932
WALDORF, ROBERT J.	1971
WALSH, JOHN P.	1958
WASDEN, JED W.	1968
WILCOX, T. GLADE	1957
WILLIAMS, WILLIAM A.	1959
ZANKOWICH, PAUL	1956

TOOL - TOOLS

AUTHOR	DATE
BONDE, ROBERT G.	1964
DOUTT, RICHARD F.	1965
HANSEN, RUSSELL G.	1964
LINTON, JOHN A.	1951
SHEFFIELD, EVERETT A	1969
VAN TASSEL, RAYMOND	1948

TRAN - TRANSPORTATION

AUTHOR	DATE
ALLEN, WILLARD A.	1963
COBURN, JAMES M.	1969
KLEINTJES, PAUL L.	1953
LOCKE, LEWIS A.	
MARBURGER, EDWARD F.	1948

TRNG - TRAINING

AUTHOR	DATE
AL-BUKHARI, NAJATI M	1968
ANDERWALD, CARL J.	1947
ATTERBERRY, PAT H.	1954
BADER, LOIS	1932
BAKER, ALFRED E.	1943
BASSERI, JAMSHID	1970
BATES, IVAN W.	1971
BIBB, HERMAN L.	1952
BROPHY, JOHN M.	1947
BROTHERTON, WILLIAM	1964
BROWN, WALTER C.	1954
COCHRAN, GEORGE C.	1967
CRUDDEN, PAUL B.	1944
CUTLER, THEODORE H.	1948
DANAHER, EUGENE I.	1946
EARHART, CECILIA R.	1946
EVANCHO, MICHAEL	1947
FAULDS, VINCENT R.	1956
FLAHERTY, HUGH	1944
FOLTMAN, FELICIAN F.	1950
FRYE, ROYE M.	1963
FRYKLUND, VERNE C.	1933
GHEEN, W. LLOYD	1970
GOSSAGE, LOYCE C.	1967
HACKETT, EDWARD V.	1967
HALL, JAMES F.	1954
HAMILTON, ALLEN T.	1941
HARPER, HERBERT D.	1934
HASKELL, ROGER W.	1969
HEARN, ARTHUR R.	1948
HEEP, RICHARD H.	1939
HUBBARD, LOUIS H.	1930
IACOBELLI, JOHN L.	1969
JOHNSON, MARVIN E.	1959
JULIAN, LESTER J.	1953
KAPLAN, HAROLD	1956
KURTH, EDWIN L.	1955
LAND, SAMUEL L.	1931
LEVENSON, WILLIAM B.	1937
LINDAHL, LAWRENCE G.	1944
LITTLE, RICHARD L.	1968
MC DOWELL, LEONARD C	1964
MUSGROVE, WILLIAM R.	19
NICHOLS, JACK D.	1970
OGUNNIYI, OMOTOSHO	1969
PAWELEK, ALAN R.	1950
PEDERSEN, GEORGE L.	1957
PORTER, HAROLD W.	1948
PRICE, DENNIS H.	1955
RELYEA, GLADYS M.	1937
ROSENQUIST, BARBARA	1971
SHEFFIECK JR, CHARLE	1969
SMITH, FARMER S.	1969
SNOW, JOHN W.	1966
SORENSEN, RONALD L.	1964
STEGEMAN, ARTHUR L.	1957
TIERNEY, WILLIAM F.	1952
TREGILGUS, EARL P.	1954
TURNER, ERWIN	1958
WALKER, LLOYD R.	1946
WHITE, STROLLER T.	1967
ZOOK, WAYNE H.	1968

UNTS - UNIT SHOP

AUTHOR	DATE
GUNDERSON, B. HARRY	1949

USA - UNITED STATES OF AMERICA

AUTHOR	DATE
BAS, RADHA C.	1950
GERBRACHT, CARLTON J	1949
GILLILAND SR, LONNIE	1955
GREER, JOHN S.	1967
HALL, CLYDE W.	1953
HAMILTON, ALLEN T.	1941
HAMMOND, ROBERT G.	1956
KRUMBIEGEL, WALTER O	1955
LAMBERT, JAMES H.	1940
LOUGHLIN, RICHARD L.	1948
MAC LEAN JR, C. B.	1963
MAHONEY, JAMES H.	1956
MC CLEARY, JOSEPH L.	1967
MILLER, DUDLEY B.	1965
MONROE, LYNNE C.	1939
OSBURN, BURL N.	1939
RINEHART, RICHARD L.	1966
ROBINSON, JAMES W.	1967
SAYOVITZ, JOSEPH J.	1955
SCHORLING, HORACE O.	1950
SHAFER, CARL I.	1961
SIMONS, ROBERT M.	1969
SMITH, HERBERT E.	1940
SREDL, HENRY J.	1964
STREICHLER, JERRY	1963
STRONG, MERLE F.	1958
TATE, HAROLD S.	1951
TRICHE JR, ANDREW	1933
USDANE, WILLIAM M.	1955
VALENTINE, IVAN E.	1969
WHITESEL, JOHN A.	1940

VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
ACHILLES, CHARLES M.	1967
ADAMS, ORVILLE D.	1952
ALGER JR, LEON J.	1967
ALKAN, OMER C.	1969
ALKAN, OMER C.	1969
ALSUP, REA T.	1967
AMBERSON, MAX L.	1968
ANDERSON, RAY N.	1932
ANDREWS JR, JOE R.	1968
ANDREWS, EARL R.	1968
ARMSTRONG, KENNETH E	1971
ARMSTRONG, WILLIAM H	1967
ARNOLD, DANIEL S.	1968
ARNOLD, FRANK J.	1932
ARNOLD, WALTER M.	1957
AUCKER, JOHN R.	1970
BAKER, RONALD D.	1968
BALLO, GARY R.	1971
BARROWS, FRANK B.	1970
BARROW, RICHARD W.	1969
BASKIN, SAMUEL	1954
BASS, WILBUR A.	1967
BATESON, ROBERT E.	1951
BATES, WILFRED M.	1968
BECKER JR, CHARLES W	1967
BENSMAN, CHARLES J.	1969
BERGSTROM, HOWARD E.	1965
BERTRAND, CLINT A.	1964
BESTOR, ROLLIE R.	1969
BIBB, HERMAN L.	1952
BISHOP, JAMES R.	1970
BLACKBURN, SAMUAL A.	1930
BLANTON, LLOYD H.	1970
BLECKMAN, JUDITH C.	1971
BOHN, RALPH C.	1957
BOLICK, GERALD M.	1968
BOLLINGER, ELROY W.	1950
BOSS, RICHARD D.	1968
BOVENIZER, ELDRED R.	1968
BOWDOIN, PAUL	1966
BOWSER, JAMES A.	1960

BOYER, JOHN W.	1970
BRANTNER, SEYMOUR T.	1962
BRENCKLE, AUTHUR G.	1968
BRENHOLTZ, GERALD S.	1967
BRIGHAM, ELDEN L.	1950
BROADHURST, JOHN C.	1949
BROOKING, WALTER J.	1948
BROWN, MILTON T.	1948
BROWN, WALTER C.	1954
BRUE, JAMES E.	1969
BURRIS, WAITUS R.	1967
BZOWSKI, EDWARD D.	1969
CAGE, BOBBY N.	1968
CAIN, JOHN N.	1970
CAMBRIA, SOPHIA T.	1945
CAMBRIA, SOPHIA T.	1945
CAMERON, WALTER A.	1969
CAMPION, HOWARD A.	1941
CAMPION, HOWARD A.	1941
CARLSON, HENRY L.	1967
CARLSON, HENRY L.	1967
CARR, EVA R.	1970
CARR, HAROLD L.	1970
CLARK, JAMES V.	1967
CLECKLER, JAMES D.	1969
CLIFTON, RONALD J.	1970
COHEN, CHESTER G.	1970
COHEN, JERRY M.	1969
COLGAN, FRANCIS F.	1967
COLLINS, SAMUEL R.	1962
COMBS, STANLEY L.	1948
COMER, JOHN C.	1970
COMM, WALTER	1967
CONLEY, FRANKLIN	19
CONROY JR, WILLIAM G	1969
COOKE, ROBERT L.	1932
CORAZZINI, ARTHUR J.	1967
COTTON, GEORGE R.	1944
CRABTREE, JAMES S.	1967
CROMER, CHALMERS A.	1970
CRUDDEN, PAUL B.	1944
CRUMPTON, CHARLES R.	1952
CRUNKILTON, JOHN R.	1969
CUMMINGS, LAWRENCE J	1969
CURTIS, BYRON W.	1968
D COSTA, AYRES G.	1968
DAINES, JAMES R.	1968
DALTON, FRANCIS W.	1937
DANIELS, BLAIR E.	1937
DASGUPTA, DEBENDRA C	1932
DAVISON, HAROLD J.	1931
DAVIS, WARREN C.	1936
DEAN, ERNEST D.	1968
DEAN, ROBERT D.	1959
DIEDRICK, WALTER F.	1971
DILIBERTO, MENNO	1968
DOERR, JOHN J.	1967
DRAKE JR, FRANCIS O.	19
DYKEHOUSE, JAY	1950
EARHART, CECILIA R.	1946
EICHER, ROBERT S.	1968
ELIAS, JOHN E.	1970
ELLIS, MARY L.	1970
ELMER, FRANCES W.	1967
ENGELBART, LEON P.	1970
ENVICK, ROBERT M.	1970
ENVICK, ROBERT M.	1970
ERWIN, CLIFFORD H.	1963
ESTABROOKE, EDWARD C	1939
ESTABROOKE, PAUL L.	1939
EVANS, WILSON A.	1954
EVEN, MARY J.	1971
FAHRLANDER, DANIEL C	1972
FAHS, ELDON E.	1967
FALKENSTINE, JAMES C	1965
FARABAUGH, MARTIN P.	1966
FIKE, IRIS L.	1956
FINDLEY, WILLIAM L.	1967
FISHER, RICHARD F.	1956
FLUCK, BRYAN V.	1970
FORKNER, HAMDEN L.	1939
FORREST JR, LEWIS C.	1970
FOWLER, HARMON R.	1970
FRANK JR, HARRY E.	1968
FRAZIER, WILLIAM D.	1966
FULLER, FOSTER D.	
FULLER, MARY M.	1970
FURIA, JOHN J.	1930
FURLONG, JOHN	1957
GADBOIS, ROBERT L.	1968
GIBSON, CHARLES H.	1968
GILBREATH, TOMMY D.	1971
GILLILAND, HUGH R.	1967
GILMAN, ROBERT A.	1969
GLAU, JON E.	1970
GLEASON, WILLIAM E.	1967
GOETZ, ROBERT E.	1958
GOISHI, FRANK H.	1970
GOISHI, FRANK H.	1970
GOLD, CLARENCE H.	1967
GRAY, KENNEY E.	1970
GRELL, DARRELL D.	1967
GROVES, RAMSEY M.	1966
GRUBER, HERBERT H.	1942
GUDITUS, CHARLES W.	1965
HAKANSON, JOHN W.	1967
HALE, LESTER W.	1967
HALL, RONALD W.	1970
HANSEN, RICHARD H.	1967
HANSSON, KENNETH S.	1966
HARLAN, OWEN	1953
HARRIS, RICHARD	1970
HARRIS, SUE A.	1970
HARRIS, VIRGINIA J.	1961
HEEP, RICHARD H.	1939
HEGER, ROBERT J.	1968
HEGGEN, JAMES R.	1967
HEILMAN, CASMER F.	1970
HELLAND, PHILLIP C.	1964
HENDRIX, SAMUEL D.	1942
HENDRIX, WILLIAM F.	1967
HERMAN, JAMES A.	1969
HILLSMAN, SALLY	1970
HIRSCHI, HARVEY C.	1969
HOBBS, ADDISON S.	1971
HOLLOWAY, LEWIS D.	1967
HOLTROP, WILLIAM F.	1948
HOLTROP, WILLIAM F.	1948
HOUSE, ELAINE	1970
HOWE, TREVOR G.	1963
HUBBARD, LOUIS H.	1930
HULLMAN, DON H.	1971
HUMBLE, MILFORD K.	1937
HYDE, ELDON K.	1968
JAMES, CALVIN E.	1963
JENKINS, FARRELL T.	1969
JETTER, EVERETT V.	1932
JOHNSON, DONALD H.	1966
JOHNSON, HARRY L.	1955
JONES, CHARLES I.	1967
JORDAN, THOMAS F.	1942
JUDD, WILLIAM P.	1971
JURKOWITZ, EUGENE L.	1968
KAISER, RONALD E.	1971
KANTER, STUART A.	1968
KARNES, M. RAY	1948
KAUFMAN, CHARLES W.	1967
KAZANAS, HERCULES C.	1967
KEIM, WILLIAM E.	1966
KELLER, LOUISE J.	1969
KENT, RONALD W.	1931
KEPLER, ATLEE C.	1968
KERWOOD, ROBERT V.	1967
KINGERY, LYLE M.	1963
KING, FRANKLIN J.	1970
KING, FRANKLIN J.	19
KING, HOMER P.	1934
KING, HOMER P.	1934
KING, THOMAS G.	1958
KINI, KULAI H.	1933
KINKER, H. ROBERT	1949
KJOS, OSCAR E.	1954
KLABENES, ROBERT E.	1971
KLEIN, CHARLES T.	1942
KOEHLER, EVERETT E.	1959

KOHLER, RODERICK G.	1952
KOHL, ERNEST D.	1949
KOHRAM, GEORGE E.	1952
KOO, PO-YEN	1968
KREPEL, WAYNE J.	1967
KRUSKOP, LEROY L.	1969
LAHREN, JAMES A.	1970
LAMBERT, JAMES H.	1940
LAND, MING H.	1970
LANGERMAN, PHILLIP D	1968
LANGFORD, AL G.	1969
LANG, EDWARD H.	1942
LAPIDUS, GEORGE	1954
LEONARD, REGIS L.	1950
LESTER, SEELIG L.	1944
LEVENSON, WILLIAM B.	1937
LIEN, DAVID A.	1971
LIGHT, KENNETH F.	1967
LINDAHL, DONALD G.	1971
LINKSZ, JAMES J.	1971
LONG, GILBERT A.	1970
LOOSLE, DARRELL K.	1967
LOPEZ, GUILLERMO	1970
LOWMAN, CLARENCE L.	1967
LUX, DONALD G.	1955
LYNN, WILLIAM L.	1968
MAGENDZO, ABRAHAM	1969
MAGISOS, JOEL H.	1968
MALKAN, JEROME M.	1967
MANESS, MARION T.	1969
MARBURGER, EDWARD F.	1948
MARBURGER, EDWARD F.	1948
MARRAH, JOHN A.	1970
MARSHALL, CHARLES R.	1971
MARTIN, WALDO D.	1970
MARTIN, WILLIAM E.	1970
MATTESON, GERALD R.	1966
MAYER, HERBERT C.	1940
MC CALLUM, HARRY N.	1967
MC CLEARY, JOSEPH L.	1967
MC CRACKEN, JOHN D.	1970
MC DOWELL, LEONARD C	1964
MC ELHENY, JOHN R.	1960
MC GAW, SIDNEY E.	1952
MC GIVNEY, JOSEPH H.	1967
MC KECHNIE, GRAEME H	1966
MC KELL, WILLIAM E.	1970
MC NEIL, JACKSON M.	1968
MC PHERSON, DANIEL W	1971
MEIERHENRY, WESLEY C	1946
MEIER, MARY A.	1969
MEISNER, ROBERT G.	1967
MELLMAN, ROBERT A.	1957
MERTZ, OTTO	1954
MESSERSCHMIDT, DALE	1967
MEYERS, LARRY D.	1968
MEYER, JOHN D.	1970
MICHIE, JACK	1968
MILAM, THOMAS R.	1968
MILLER, JACK D.	1971
MOELLER, CARL A.	1961
MONEY, HOMER E.	1956
MONROE, ALLEN L.	1970
MONROE, LYNNE C.	1939
MONTELIC, PAUL A.	1968
MOODY, RICHARD D.	1968
MORGAN JR, ALFRED D.	1967
MORGAN, JACK W.	1951
MORGAN, JIMMY B.	1969
MORTON, BERRY E.	1950
MOULLETTE, JOHN B.	1970
MUND, RICHARD G.	1970
MURBACH, NELSON J.	1949
MUSGROVE, WILLIAM R.	19
NAGLE, ROLAND E.	19
NEALIS, MICHAEL F.	1951
NEASHAM, ERNEST R.	1968
NEFF, WILLIAM L.	1941
NIENHAUS, BERNARD J.	1971
NORRIS, MARSENA M.	1968
OAKLEY, GARY D.	1970
OGUNNIYI, OMOTOSHO	1969
OHLSON, ELI E.	1943
OLIVER, WILMOT F.	1967
OLIVO, C. THOMAS	1954
OLSEN, EDWARD G.	1937
OLSEN, EUGENE A.	1968
OLSON, HERBERT A.	1970
ORR, RALPH O.	1970
PAINE, HARRY W.	1943
PARKES, GEORGE H.	1939
PARKHILL, GEORGE D.	1938
PARKS, DARRELL L.	1968
PARRY, ERNEST B.	1968
PATTERSON JR, PHILIP	1968
PAUTLER, ALBERT J.	1967
PEIFFER JR, HERBERT	1939
PELLEGRIN JR, JOSEPH	1971
PENN, THOMAS L.	1968
PENNY, FOREST L.	1960
PERDUE, SAUL M.	1954
PHILLIPS JR, MILTON	1967
PHILLIPS, LOREN D.	1954
PIERCE, WILLIAM F.	1967
PLUSCH, JAMES D.	1967
POLK, HAROLD J.	1969
PRATT, ARDEN L.	1968
PRICE, CARROLL S.	1968
PUGEL, DAVID J.	1966
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PUTMAN, CARL E.	1970
RAICHLE, HENRY F.	1969
RAYFORD, ERWIN W.	1967
RAY, J. EDGAR	1944
REISENGER, RAYMOND H	1970
RICE, DICK C.	1966
RICE, DON A.	1969
RIDLEY JR, WILLIAM H	1970
RIMLER, GEORGE W.	1969
ROBINSON, WILLIAM O.	1971
RONODIDIJOJO, SOEWAN	1968
ROSS, BENJAMIN P.	1944
ROSS, HERBERT J.	1970
ROWNTREE, URWIN	1951
RUMPF, EDWIN L.	1954
RYAN, CHESTER M.	1963
SALTEN, DAVID G.	1944
SANDERS, LESTER E.	1967
SANDMAN, CHARLES W.	1969
SCHACHT, ROBERT C.	1971
SCHAEFER, CARL J.	1959
SCHOTT, WILLIAM J.	1954
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SCHREIBER, ERNEST	1967
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SCHULTZ, IRWIN J.	1949
SCOTT, CHARLES P.	1943
SEARS JR, WILLIAM P.	1930
SEIDEL, JOHN J.	1951
SELMAN, JAMES W.	1967
SHANTHAMALLAPPA, B.	1950
SHELTON, JOHN A.	1968
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SILVER, HARVEY A.	1967
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SLACK, NEILL C.	1963
SLATTERY, RAYMOND A.	1969
SOMMERFELD, DONALD A	1969
SOULE, DAVID H.	1966
SPAZIANI, RICHARD L.	1972
SPRECHER, ROBERT E.	1970
STANGER, NORMAN R.	1967
STANTON, WILLIAM A.	1967
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STRANDBERG, C. E.	1963
STRUCK, JOHN W.	1956
STUART, CHIPMAN G.	1968
STUART, HARLAND	1933
SULLIVAN, THOMAS W.	1967
SUTTON, FRED C.	1961
TAGGART, LEO R.	1953
TATUM JR, JULIAN P.	1967
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THOMAS JR, WADE F.	1957
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TRICHE JR, ANDREW	1933
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TUTHILL, RUSSELL	1970
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URGELL, FRANCISCO C.	1941
UXER, JOHN E.	1967
VALENTINE, IVAN E.	1969
VAN DUSEN, EDWARD B.	1948
VAN OOT, BENJAMIN H.	1932
VANDIVER, ROBERT E.	1968
VANTRUMP, WILLIAM F.	1961
VERMEULEN, ROBERT	1968
VON STROH, GORDON E.	1968
WALSH, JOHN P.	1958
WARD, DARRELL L.	1971
WASHBURN, CLYDE I.	1969
WEAGRAFF, PATRICK J.	1971
WELSH, BARTON W.	1971
WELSH, DONALD J.	
WHITE, ALVIN M.	1958
WHITE, LELAND W.	1966
WHITNEY, LARRY J.	1967
WIERSTEINER, SAMUEL	1970
WILCOX, T. GLADE	1957
WILLIAMSON, MERRILL	1958
WILLIAMS, MICHAEL	1970
WILLIAMS, ROBERT T.	1969
WILLIAMS, WILLIAM A.	1959
WILSON, ROGER J.	1970
WINSEMAN JR, ALBERT	1969
WITHERSPOON, EVERETT	1971
WITT, HENERY F.	1971
WOFFORD, THOMAS B.	1963
WOJCIK, JAMES A.	1971
WOOD, GRANT R.	1970
WOOD, GRANT R.	1970
WOOLDRIDGE, ROBERT E	1961
WREN, HAROLD A.	1941
YOHO, LEWIS W.	1959
YOUMANS, CHARLES V.	1955
YUNG, JOHN E.	1965
ZAREISN, SOLEIMAN	1969
ZIMMER, THEODORE A.	1969
ZWEIBEL, MALCOLM C.	1968

VOGI - VOCATIONAL GUIDANCE

AUTHOR	DATE
AKEY, WAYNE W.	1952
ALSUP, REA T.	1967
ANDERSON, EDWARD C.	1970
ANDREWS JR, JOE R.	1968
ARMBRUST, ROBERT W.	1969
ARMSTRONG, KENNETH E	1971
BAKER, RONALD D.	1968
BARNETT, LEONARD J.	1969
BARROW, RICHARD W.	1969
BARTLETT, WILLIS E.	1967
BASKIN, SAMUEL	1954
BEACHAM, HERBERT C.	19
BEACH, CHARLES K.	1941
BEHM, HARLEY D.	1967
BENJAMIN, GERALD E.	1968
BERGSTROM, HOWARD E.	1965
BING, KENNETH L.	1941
BLACK, DONALD E.	1970
BLEDSOE, HARRY J.	1968
BOLICK, GERALD M.	1968
BOONE, JAMES L.	1966
BOTTOMS, JAMES E.	1965
BOVENIZER, ELDRED R.	1968
BRADLEY, HARRY L.	1967
BRADSHAW, OTTIE L.	1968
BRAME, WILLIAM E.	1967
BRIGHAM, ELDEN L.	1950
BRINKMAN, FRED J.	1970
BROWN, B. WESLEY	1960
BROWN, WALTER C.	1954
BRUE, JAMES E.	1965
BUZZELL, CHARLES H.	1970
CAMBRIA, SOPHIA T.	1945
CAMBRIA, SOPHIA T.	1945
CASNER, DANIEL	1950
CHAVOUS, ARTHUR M.	1945
CHILSON, JOHN S.	1969
CLAWSON, LA VERE E.	1967
CLEVELAND, JOHN M.	1961
CLIFTON, RONALD J.	1970
COHEN, CHESTER G.	1970
COHEN, JERRY M.	1969
COHEN, LOUIS A.	1965
COMBS, STANLEY L.	1948
COMER, JOHN C.	1970
CONNER, JOHN D.	1971
COCKE, ROBERT L.	1932
COX, STEVEN G.	1968
CRAWFORD, JOHN E.	1941
CRUMPTON, CHARLES R.	1952
CRUNKILTON, JOHN R.	1969
CUONY, EDWARD R.	1953
CURTIS, BYRON W.	1968
D COSTA, AYRES G.	1968
DAUGHERTY, RONALD D.	1971
DINGMAN, ERWIN	1949
DODGE, ARTHUR F.	1935
DOERR, JOHN J.	1967
DRENNAN, JERRY D.	1970
DREW, ALFRED S.	1962
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DUKES, GLENN F.	1969
DUTT, KARL F.	1969
EISENBERG, WILLIAM L	1947
ELLIOTT, EARL S.	1967
ELMGREN JR, G. THEOD	1963
ENZIAN, HAROLD J.	1967
ERWIN, CLIFFORD H.	1963
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FALKENSTINE, JAMES C	1965
FAWCETT, CLAUDE W.	1943
FLEMING, JOSEPH W.	1937
FLUCK, BRYAN V.	1970
FOSTER, HOWARD G.	1969
FRISBY, RUSSELL C.	1968
FRYKLUND, VERNE C.	1933
FULLER, FOSTER D.	
FURLONG, JOHN	1957
GEARING, PHILLIP	1970
GELINAS, PAUL J.	1954
GILBREATH, TOMMY D.	1971
GOFF, WILLIAM H.	1967
GORDON, KENNITH G.	1971
GRIFFIN, JAMES F.	1970
HAGEMEYER, RICHARD H	1960
HAKANSON, JOHN W.	1967
HALLAHAN, MICHAEL F.	1969
HALL, DAVID H.	1971
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HARLAN, OWEN	1953
HARRIS, VIRGINIA J.	1961
HATALSAN, JOHN W.	1963
HAUGO, RICHARD R.	1969
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HEEP, RICHARD H.	1939
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HELBERG, DONALD H.	1969
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HILL, FREDERICK W.	1942
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HIRSCHI, HARVEY C.	1969
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HODGSON, PAUL M.	1965
HOERNER, HARRY J.	1969
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JACKSON, ROSS P.	1967
JACKSON, THOMAS A.	1962
JENKINS, FARRELL T.	1969
JENSEN, THOMAS R.	1968
JOHNSON, DONALD H.	1966
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JURKOWITZ, EUGENE L.	1968
KANTER, STUART A.	1968
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KLATT, LAWRENCE A.	1967
KEHL, ERNEST O.	1949
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KRANTZ, MATTHEW B.	1970
KREIDER, LEONARD E.	1968
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KRUBECK, FLOYD E.	1954
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LAPIDUS, GEORGE	1954
LARSON, RAYMOND H.	1951
LEFFARD, WARREN L.	1968
LEMLEY, JOE W.	1970
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LITTRELL, JOSEPH J.	1958
LOOSLE, DARRELL K.	1967
LOWENSTEIN, NORMAN	1955
LUTZ, RONALD J.	1969
LYBARGER, ALVIN E.	
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MADDOX, MARION E.	1951
MARSHALL JR, THOMAS C	1941
MASON, WILLIAM H.	1970
MC CABE, FRED J.	1970
MEIER, MARY A.	1969
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MIDILI, JOHN A.	1970
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MILLER, CLARENCE M.	1968
MILLER, DUDLEY B.	1965
MILLER, L. PAUL	1939
MINELLI, ERNEST L.	1957
MOELLER, CARL A.	1961
MOORE, LELAND B.	1970
MORGAN, DARYLE W.	19
MORGAN, JIMMY B.	1969
MORTIMER, WILLIAM E.	1956
MORTON, BERRY E.	1950
MOUTOUX, ALFRED C.	1948
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NESWICK, LAWRENCE G.	1971
NEWBURY, DAVID N.	1967
NIENHAUS, BERNARD J.	1971
OMAN, RONALD N.	1971
PASSMORE, JAMES L.	1968
PEEL, NANCY D.	1967
PHILLIPS, DONALD S.	1968
PLUSCH, JAMES O.	1967
PRUSKI, JOHN	1958
QUICK, OTHO J.	1954
REISENGER, RAYMOND H	1970
RELYEA, GLADYS M.	1937
RICE, DON A.	1969
RICHARDSON, ROBERT B	1967
ROBINSON, CLARK N.	1947
ROLLINGS, JAMES W.	1967
ROSENQUIST, BARBARA	1971
SANDMAN, CHARLES W.	1969
SCHELLER, THOMAS G.	1967
SCHULTZ, IRWIN J.	1949
SEIGLER, CLAUDE I.	1970
SHAW, GERALD H.	1968
SHEPPARD, LAWRENCE F	1967
SHERRELL, EUGENE G.	1969
SHIBLES, FOSTER M.	1971
SMITH, ROYAL E.	1969
SNOW, JOHN W.	1966
SOLIMAN, ABDALLA M.	1967
SOLTYS, ROBERT G.	1971
STENSON, ORVIS J.	1971
STILLERMAN, MANUEL	1970
STORMER, DONALD L.	1967
STROUT, GEORGE M.	1970
TATUM JR, JULIAN P.	1967
THIEL, DONALD W.	1959
THORPE, CLAIBURNE B.	1968
TICHENOR, HAROLD D.	1967
TRAMBLEY, JOHN B.	1969
TREGO, JOHN W.	1958
TURECHEK, ARMIN G.	1967
ULLERY, JESSE W.	1971
VAN DERSLICE, JOHN F	1967
WALDORF, ROBERT J.	1971
WALSTON, HARRY W.	1970
WANGER, RUTH	1971
WASHBURN, KENNETH R.	1971
WATKINS, KENNETH E.	1966
WELSH, DONALD J.	
WERNER, WAYNE E.	1969
WEST, WILLIAM E.	1969
WHATLEY, ALICE E.	1967
WHEELER JR, CHARLES	1967
WHINFIELD, RICHARD W	1969
WIEHE, THEODORE E.	1954
WIJEYEWARDENE, JALUT	1960
WILBUR, LOUISE	1931
WILLENSON, MILTON W.	1968
WOJCIK, JAMES A.	1971
WOLLINGTON, JAMES M.	1966
WOOLDRIDGE, ROBERT E	1961
WREN, HAROLD A.	1941
WRIGLEY, MARGARET	1968
WYNNE, ROBERT L.	1968
YOUNG, ROBERT W.	1966
YUNG, JOHN E.	1965
ZOOK, WAYNE H.	1968
ZUDAK, LAWRENCE S.	1969

VORE - VOCATIONAL REHAB. & RETRAINING

AUTHOR	DATE
ALLEN, JAY M.	1967
ANDERSON, RAY N.	1932
BARNETTE JR, W. L.	1949
BARTLETT, WILLIS E.	1967
BEACHAM, HERBERT C.	19
BERTRAND, CLINT A.	1964
BLACK, DONALD E.	1970
BLAKELEY, THOMAS A.	1949
BRITT, ROBERT D.	1966
BURRIS, WAITUS R.	1967
CASNER, DANIEL	1950
ELMER, FRANCES W.	1967
FAWCETT, CLAUDE W.	1943
FEATHER, DON B.	1949
HAGGLUND, GEORGE S.	1966
HANEY, PHILIP H.	1949

HANSON, DURWIN M.	1956
HUTCHERSON, ETHEL M.	1966
KAUFMAN, CHARLES W.	1967
KOCH, NORBERT	1951
KUNTZ, ELMER L.	1968
LANGDON, CHARLES W.	1967
LOUGHLIN, RICHARD L.	1948
LOWMAN, CLARENCE L.	1967
MC KECHNIE, GRAEME H	1966
NICHOLS, JACK D.	1970
NILSON, KENNETH	1931
OSBURN, BURL N.	1939
PRUSKI, JOHN	1958
SELF JR, JOHN M.	1967
THIEL, DONALD W.	1959
USDANE, WILLIAM M.	1955
VERMEULEN, ROBERT	1968

WDFN - WOODFINISHING

AUTHOR	DATE
GERBER, RUSSELL L.	1966

WELD - WELDING

AUTHOR	DATE
CHRISMAN, JOSEPH P.	1970
EVANCHO, MICHAEL	1947
MAUER, DONALD E.	1966
MORGAN, DARYLE W.	19
NEWTON, ROBERT E.	1970
ROSIN, WILLIAM J.	1969
SEAL, MICHAEL R.	1969
SERGEANT, HAROLD A.	1968
WHITE, BRUCE H.	1967

WOMN - WOMEN

AUTHOR	DATE
COOKE, ROBERT L.	1932
HUBBARD, LOUIS H.	1930
KAUFMAN, CHARLES W.	1967
LINNICK, IDA	1949
LITTRELL, JOSEPH J.	1958
SCHRAMM, DWAYNE G.	1969

WOOD - WOOD

AUTHOR	DATE
ANDERSON, HERBERT A.	1953
ANDERSON, KERMIT P.	1967
BALLARD, JOHN R.	1966
BECKHAM, JOE W.	1969
BJORNERUD, JAMES A.	1970
BORTZ, RICHARD F.	1967
BOX SR, MARSHALL R.	1967
BROOKS, WESTON T.	1964
CAPRON, JOHN H.	1955
ENTORF, JOHN F.	1967
FALLS, JOHN E.	1968
HANSEN, PHILLIP W.	1970
HENAK, RICHARD M.	1971
HESS, HARRY L.	1969
HINCKLYE, EDWIN C.	1963
ISOM, VERNON H.	1970
JACOBSEN, JAMES H.	1964
JOHNSON, ROBERT I.	1958
KAISER, HAROLD F.	1968
KASSAY, JOHN A.	1970
KEENER, CLYDE	1959
KLEHM, WALTER A.	1937
LEMASTER, LELAN K.	1961
LENTO, ROBERT	1971
MILLER, THOMAS W.	1958
NEUBAUER, GERHARDT W	1956
OLSON, DAVID O.	19
PIERSALL, ARNOLD C.	1964
PITTMAN, FRANK M.	1970
QUIER, GEORGE T.	1969
STEGEMAN, ARTHUR L.	1957
WRIGHT, OSCAR W.	1954

THE FOLLOWING INDEX IS A COMPILATION OF ABSTRACTS INDENTIFIED BY THE COMPUTER UNDER TWO OR THREE DESCRIPTOR SEARCHES, FOR EXAMPLE, A STUDY MAY DEAL WITH PROGRAM EVALUATION (EVPR) IN HIGHER EDUCATION (HIED), IF THESE DESCRIPTORS WERE ASSIGNED WHEN THE DOCUMENT WAS PROCESSED, IT WOULD APPEAR IN THE LISTING UNDER THE COMBINATION OF THESE TWO DESCRIPTORS. THE MORE DESCRIPTORS USED IN THE SEARCH, THE MORE SELECTIVE THE COMPUTER BECOMES. TOO MUCH SELECTIVITY MAY CAUSE YOU TO ELIMINATE USABLE STUDIES, SO WE HAVE MADE NO MORE THAT A FEW THREE DESCRIPTOR SEARCHES.

INDEX FOR DISSERTATION ABSTRACTS BY DOUBLE DESCRIPTOR

ACHV - ACHIEVEMENT
EXPR - EXPERIMENTAL STUDIES

AUTHOR	DATE
BURSE SR, LUTHER	1969
COOMER, JERRY W.	1971
HEPLER, EARL R.	1957
HORBAKE, R. LEE	1942
JACOBSEN, ECKHART A.	1957
JOHNSON, FRANK F.	1971
LANDECKER, LOUIS	1969
LONDON, HOYT H.	1934
RICHARDS, MAURICE F.	1950
ROUTH, JERRY D.	1970
RUSSELL JR, JAMES A.	1967
SEAL, MICHAEL R.	1969
WILLS, VERNON L.	1965

ADED - ADULT EDUCATION
ELEL - ELECTRICITY/ELECTRONICS

AUTHOR	DATE
FARR, WILBUR J.	1958

ADMN - ADMINISTRATION
EVPR - EVALUATION - PROGRAM

AUTHOR	DATE
BAILEY, MILTON J.	1968
BISHOP, JAMES R.	1970
BLOCK, MURRAY H.	1953
CROUCH, J. PAGE	1968
EDMUNDS, NIEL A.	1969
EICHER, ROBERT S.	1968
EVANS, WILSON A.	1954
FORBES, ROY H.	1970
FRANK JR, HARRY E.	1968
GIBSON, CHARLES H.	1968
GRAMBERG, MERLYN L.	1971
GRAY, KENNEY E.	1970
HEATH, JAMES L.	1967
HILL, FREDERICK W.	1942
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JOHNSON, RAYMOND C.	1971
LANG, EDWARD H.	1942
MASON, WILLIAM H.	1970
MEHAIL, SPIRO	1971
MEISNER, ROBERT G.	1967
MELLINGER, BARRY L.	1972
MICHELSON, EINO S.	1956
MILAM, THOMAS R.	1968
MILLER, JACK D.	1971
MONTELLO, PAUL A.	1968
PHILLIPS JR, MILTON	1967
SCHMIDT JR, FRED J.	1941
STEPHENSON, LESLIE E	1958
WEAGRAFF, PATRICK J.	1971
WOFFORD, THOMAS B.	1963

ADMN - ADMINISTRATION
FACP - FACILITY PLANNING

AUTHOR	DATE
ASHCRAFT, NORMAN C.	1968
MONROE, ALLEN L.	1970
ROSS, RAYMOND J.	1966
SCHMIDT JR, FRED J.	1941
SMITH, IRVING G.	1969
VAN DYKE, ARVID W.	1970

ADMN - ADMINISTRATION
FINA - FINANCES

AUTHOR	DATE
CORFIAS, JOHN C.	1967
FOWLER, HARMON R.	1970
GARRETT, ARTHUR M.	1971
GIBSON, CHARLES H.	1968
GOISHI, FRANK H.	1970
GRAMBERG, MERLYN L.	1971
HEATH, JAMES L.	1967
JOHNSON, RAYMOND C.	1971
KOCH, NORBERT	1951
OLSEN, EUGENE A.	1968
PARRY, ERNEST B.	1968
POWELL, PAUL E.	1954
ROBERTSON, LYLE R.	1968
SHELTON, JOHN A.	1968

ADMN - ADMINISTRATION
I.A. - INDUSTRIAL ARTS

AUTHOR	DATE
BACKUS, KERBY D.	1963
HEATH, JAMES L.	1967
HUMBERT 3, JOHN J.	1967
JOHNSON, RAYMOND C.	1971
MAHONEY, JAMES H.	1956
MASON, WILLIAM H.	1970
MASON, WILLIAM H.	1970
MC ROBBIE, J. M.	1963
MICHEELS, WILLIAM J.	1941
MOSLEY, SAMUEL N.	1970
ROSS, RAYMOND J.	1966
RUSSELL, GENE H.	1970
SCHERER, HARLAN L.	1960
SEEFIELD, KERMIT A.	1949
SMITH, IRVING G.	1969
STEEB, RALPH V.	1959
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STEVENSON, JAMES E.	1953
TAXIS, DAVID O.	1962
THORP, JOHN H.	1945
VAN DYKE, ARVID W.	1970

ADMN - ADMINISTRATION
METH - METHODS

AUTHOR	DATE
HEGER, ROBERT J.	1968
MC PHERSON, DANIEL W	1971
RESNICK, HAROLD S.	1970
ROWNTREE, URWIN	1951

ADMN - ADMINISTRATION
PRPL - PROGRAM PLANNING

AUTHOR	DATE
ACHILLES, CHARLES M.	1967
ASHCRAFT, NORMAN C.	1968
BARICH, DEWEY F.	1961
CANDOLI, I. C.	1967
ELIAS, JOHN E.	1970
FORBES, ROY H.	1970
FOWLER, HARMON R.	1970
FRYE, ROYE M.	1963
GORDON, KENNITH G.	1971
GORDON, LINDA	1971
GRAMBERG, MERLYN L.	1971
GRAY, KENNEY E.	1970
HELLAND, PHILLIP C.	1964
HOSTETLER, IVAN	1945
HUMBERT 3, JOHN J.	1967
JOHNSON, FRANKLIN R.	1969
JOHNSON, RAYMOND C.	1971
MEHAIL, SPIRO	1971
MELLINGER, BARRY L.	1972
MONTELLO, PAUL A.	1968
NEEDHAM, RAYMOND J.	1969
OLSEN, EUGENE A.	1968
PELLEGRIN JR, JOSEPH	1971
RESNICK, HAROLD S.	1970
ROBERTSON, LYLE R.	1968
SCHAEFFER, CARL J.	1959
VAN DYKE, ARVID W.	1970
WEAGRAFF, PATRICK J.	1971

ADMN - ADMINISTRATION
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
ACHILLES, CHARLES M.	1967
ARNOLD, WALTER M.	1957
BASS, WILBUR A.	1967
BISHOP, JAMES R.	1970
BLANTON, LLOYD H.	1970
BOWDOIN, PAUL	1966
COLGAN, FRANCIS E.	1967
DAVISON, HAROLD J.	1931
EICHER, ROBERT S.	1968
ELIAS, JOHN E.	1970
EVANS, WILSON A.	1954
FOWLER, HARMON R.	1970
FRANK JR, HARRY E.	1968
GIBSON, CHARLES H.	1968
GOISHI, FRANK H.	1970
GRAY, KENNEY E.	1970
HEGER, ROBERT J.	1968
HELLAND, PHILLIP C.	1964
HOUSE, ELAINE	1970
KAISER, RONALD E.	1971
KAZANAS, HERCULES C.	1967
KOHRAM, GEORGE E.	1952
KREPEL, WAYNE J.	1967
LANG, EDWARD H.	1942
LESTER, SEELIG L.	1944
LONG, GILBERT A.	1970
MAGISOS, JOEL H.	1968
MARSHALL, CHARLES R.	1971
MC GIVNEY, JOSEPH H.	1967
MC NEIL, JACKSON M.	1968
MC PHERSON, DANIEL W	1971
MEISNER, ROBERT G.	1967
MEYER, JOHN D.	1970
MILAM, THOMAS R.	1968
MILLER, JACK D.	1971
MONEY, HUMER F.	1956
MONROE, ALLEN L.	1970
MONTELLO, PAUL A.	1968
OLSEN, EUGENE A.	1968
PARKS, DARRELL L.	1968
PARRY, ERNEST B.	1968
PELLEGRIN JR, JOSEPH	1971
PHILLIPS JR, MILTON	1967
PIERCE, WILLIAM F.	1967
PUTMAN, CARL F.	1970
ROSS, BENJAMIN P.	1944
ROWNTREE, URWIN	1951
RUMPF, EDWIN L.	1954
SCHAEFFER, CARL J.	1959
SHELTON, JOHN A.	1968
SOULE, DAVID H.	1966
TUXHORN, SCOTT E.	1967
WARD, DARRELL L.	1971
WEAGRAFF, PATRICK J.	1971
WHITNEY, LARRY J.	1967
WOFFORD, THOMAS B.	1963
YOHO, LEWIS W.	1959

ATMN - AUTOMATION
TEED - TEACHER EDUCATION

AUTHOR	DATE
BAKER, GEORGE L.	1970

ATMN - AUTOMATION
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
DEAN, ROBERT D.	1959

ATTD - ATTITUDE
ADMN - ADMINISTRATION

AUTHOR	DATE
BACKUS, KERBY D.	1968
BRACEY, HYLER J.	1969
CORMACK, ROBERT B.	1970
FENDLASON, DONALD W.	1969
FRANK JR, HARRY E.	1968
HUMBERT 3, JOHN J.	1967
KAISER, RONALD E.	1971
KREPEL, WAYNE J.	1967
MAGISOS, JOEL H.	1968
MASON, WILLIAM H.	1970
MC KINNEY, FLOYD L.	1969
MC NEIL, JACKSON M.	1968
MILAM, THOMAS R.	1968
MONROE, ALLEN L.	1970
MOSLEY, SAMUEL N.	1970
PARKS, DARRELL L.	1968
PELLEGRIN JR, JOSEPH	1971
PHILLIPS JR, MILTON	1967
ROBERTS, EDWARD R.	1971
RUSSELL, GENE H.	1970
ZULLINGER, JOHN	1966

ATTD - ATTITUDE
EVFA - EVALUATION - FACULTY

AUTHOR	DATE
CLABAUGH, RICHARD D.	1971
FORREST JR, LEWIS C.	1970
HAGEN, DONALD L.	1972
MC LONEY WIRT L.	1965
NEASHAM, ERNEST R.	1968
OPPELT, MARION O.	1967
TOLLEY, CHARLES H.	1969

ATTD - ATTITUDE
EVPR - EVALUATION - PROGRAM

AUTHOR	DATE
ALSUP, REA T.	1967
DE OLD, ALAN R.	1971
FAZZINI, PHILLIP A.	1970
GERNE JR, TIMOTHY A.	1967
HEARN, ARTHUR R.	1948
HESS, HARRY L.	1969

ATTD - ATTITUDE
I.A. - INDUSTRIAL ARTS

AUTHOR	DATE
BACKUS, KERBY D.	1968
BAIRD, RONALD J.	1960
BALL, JOHN E.	1971
BEDNAR, ERNEST G.	1955
CARTER, JOHN P.	1970
DE OLD, ALAN R.	1971
FAZZINI, PHILLIP A.	1970
FUZAK, JOHN A.	1948
GINTHER, RICHARD E.	1964
GLISMANN, LEONARD W.	1967
HAIGWOOD, THOMAS L.	1959
HALL, JAMES R.	1970
HAWSE, JOHN E.	1964
HUMBERT 3, JOHN J.	1967
JACKSON, PETER A.	1965
JAGEMAN, LARRY W.	1968
JONES, GUY R.	1971
MASON, WILLIAM H.	1970
MC CLELLAN, LARRY D.	1971
MC LONEY WIRT L.	1965
NESSMAN, WARREN B.	1963
MILLER, LARRY R.	1971
MOSLEY, SAMUEL N.	1970
PERSHERN, FRANK R.	1967
RUSSELL, GENE H.	1970
UNDERHILL, CHARLES M	1968
WARGO, WILLIAM D.	1968

ATTD - ATTITUDE
I.E. - INDUSTRIAL EDUCATION

AUTHOR	DATE
ANDERSON, LOWELL D.	1969
FUZAK, JOHN A.	1948
GILLILAND, HUGH R.	1967
HUNTINGTON, HAROLD A	1940
KARNES, M. RAY	1948
KENNEKE, LARRY J.	1968
LARSON, CURTIS G.	1971
LYBARGER, ALVIN E.	
PFAHL, ALVIN K.	1970
ZULLINGER, JOHN	1966

ATTD - ATTITUDE
METH - METHODS

AUTHOR	DATE
DE OLD, ALAN R.	1971
FAZZINI, PHILLIP A.	1970
GERNE JR, TIMOTHY A.	1967
HESS, HARRY L.	1969
STANFIELD, FOSTER A.	1971

ATTD - ATTITUDE
TEED - TEACHER EDUCATION

AUTHOR	DATE
ANDERSON, LOWELL D.	1969
BEDNAR, ERNEST G.	1955
CORMACK, ROBERT B.	1970
DRAWDY, LARRY A.	1971
FENDLASON, DONALD W.	1969
FORREST JR, LEWIS C.	1970
GINTHER, RICHARD E.	1964
HAGEN, DONALD L.	1972
HUNTINGTON, HAROLD A	1940
KENNEKE, LARRY J.	1968
LARSON, CURTIS G.	1971
MOSLEY, SAMUEL N.	1970
PARKS, CARRELL L.	1968
PFAHL, ALVIN K.	1970
RUSSELL, GENE H.	1970
SPRECHER, ROBERT E.	1970
WARGO, WILLIAM D.	1968
WIERSTEINER, SAMUEL	1970

ATTD - ATTITUDE
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
ALSUP, REA T.	1967
CLECKLER, JAMES D.	1969
CLIFTON, RONALD J.	1970
COHEN, CHESTER G.	1970
CONROY JR, WILLIAM G	1969
EVEN, MARY J.	1971
FORREST JR, LEWIS C.	1970
FRANK JR, HARRY E.	1968
FULLER, MARY M.	1970
GILBREATH, TOMMY D.	1971
GILLILAND, HUGH R.	1967
HYDE, ELDON K.	1968
KAISER, RONALD E.	1971
KARNES, M. RAY	1948
KELLER, LOUISE J.	1969
KOHL, ERNEST O.	1949
KREPEL, WAYNE J.	1967
LAHREN, JAMES A.	1970
LIGHT, KENNETH F.	1967
LYNN, WILLIAM L.	1968
MAGISOS, JOEL H.	1968
MC NEIL, JACKSON M.	1968
MILAM, THOMAS R.	1968
MONROE, ALLEN L.	1970
MORGAN, JIMMY B.	1969
MUND, RICHARD G.	1970
NAGLE, ROLAND F.	19
NEASHAM, ERNEST R.	1968
NORRIS, MARSENA M.	1968
PARKS, CARRELL L.	1968
PELLEGRIN JR, JOSEPH	1971
PHILLIPS JR, MILTON	1967
RICE, DICK C.	1966
ROBINSON, WILLIAM O.	1971
SHEPARD, JON M.	1968
SHERCK, CHARLES P.	1969
SHIBLES, FOSTER M.	1971
SPRECHER, ROBERT E.	1970
STANGER, NORMAN K.	1967
WIERSTEINER, SAMUEL	1970

BHOJ - BEHAVIORAL OBJECTIVES
PRPL - PROGRAM PLANNING

AUTHOR	DATE
CREMER, KENNETH D.	1970
FORBES, ROY H.	1970

CERT - CERTIFICATION
GUID - GUIDANCE AND COUNSELING

AUTHOR	DATE
CONLEY, FRANKLIN	19

CERT - CERTIFICATION
TEED - TEACHER EDUCATION

AUTHOR	DATE
BAILEY, DONALD A.	1970
BRENCKLE, AUTHUR G.	1968
BROWN, ROBERT D.	1955
CONLEY, FRANKLIN	19
DARDEN, BYRNES L.	1951
JACKEY, DAVID F.	1933
LAUDA, DONALD P.	1966
LUCY, JOHN H.	1971
ORR, RALPH O.	1970
PFAHL, ALVIN K.	1970
PROCTOR, BERNARD S.	1950
SAYOVITZ, JOSEPH J.	1955
STOUGH, KENNETH F.	1968
VAUGHN, MAURICE S.	1967

CERT - CERTIFICATION
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
BRENCKLE, AUTHUR G.	1968
CONLEY, FRANKLIN	19
EARHART, CECILIA R.	1946
ORR, RALPH O.	1970
STANTON, WILLIAM A.	1967
STOUGH, KENNETH F.	1968

CERT - CERTIFICATION
VOGI - VOCATIONAL GUIDANCE

AUTHOR	DATE
WRIGLEY, MARGARET	1968

CMPT - COMPETENCIES
VOGI - VOCATIONAL GUIDANCE

AUTHOR	DATE
ENVICK, ROBERT M.	1970
MINELLI, ERNEST L.	1957

COE - COOPERATIVE OCCUPATIONAL ED.
HIED - HIGHER EDUCATION

AUTHOR	DATE
BUTTERY, WILLIAM A.	1971
LAUDA, DONALD P.	1966
WILSON, ROGER J.	1970

CPTR - COMPUTER
GRAD - GRADUATE PROGRAMS

AUTHOR	DATE
HORNBUCKLE, GARY D.	1967

CPTR - COMPUTER
METH - METHODS

AUTHOR	DATE
BARBER, CARL S.	1967
BIEKERT, RUSSELL G.	1971
GIERKE, EARL W.	1970
HARDING, LARRY G.	1971
NOVOSAD, JOHN P.	1971

CRCN - CURRICULUM CONSTRUCTION
DRAF - DRAFTING/DRAWING

AUTHOR	DATE
DOELLINGER, KEITH E.	1971
HUSUNG, WILLIAM T.	1970
WALSTON, HARRY W.	1970

CRCN - CURRICULUM CONSTRUCTION
ELEL - ELECTRICITY/ELECTRONICS

AUTHOR	DATE
FARR, WILBUR J.	1958
GOLDBERG, JOEL	1971
INGRAM, MAURICE D.	1971
JOHNSON, DOUGLAS H.	1969
KAVANAUGH, WILLIAM A	1955
KLEIMAN, HERBERT S.	1966
LEVENSON, WILLIAM B.	1937
SEIGLER, CLAUDE I.	1970
SHIGETOMI, SAMSON S.	1970
SORENSEN, RONALD L.	1964

CRCN - CURRICULUM CONSTRUCTION
GRAD - GRADUATE PROGRAMS

AUTHOR	DATE
FECIK, JOHN T.	1970
STRANDBERG, C. E.	1963

CRCN - CURRICULUM CONSTRUCTION
JEWL - JEWELRY AND LAPIDARY

AUTHOR	DATE
EVANS, HARRY L.	1953

CRCN - CURRICULUM CONSTRUCTION
METL - METALS

AUTHOR	DATE
CAMPBELL, CLIFTON P.	1971
GRAHAM, GREGORY S.	1971

CRCN - CURRICULUM CONSTRUCTION
PLAS - PLASTICS

AUTHOR	DATE
THORNTON, ROBERT W.	1971

CRCN - CURRICULUM CONSTRUCTION
POWR - POWER

AUTHOR	DATE
DAVIS, JIM L.	1966
GRANNIS, GARY E.	1970

CRCN - CURRICULUM CONSTRUCTION
WOOD - WOOD

AUTHOR	DATE
ANDERSON, HERBERT A.	1953

DEMO - DEMONSTRATION
METH - METHODS

AUTHOR	DATE
CANDOLI, I. C.	1967
REED, WILLIAM T.	1947

DEYH - DEPRIVED YOUTH
HIED - HIGHER EDUCATION

AUTHOR	DATE
JENSEN, THOMAS R.	1968
WOODEN, RALPH L.	1956

DEYH - DEPRIVED YOUTH
HS - HIGH SCHOOL

AUTHOR	DATE
AMELON, DONALD J.	1969
BALL, CHIALES E.	1958
BENSON, M. J.	1967
CALEY, PAUL C.	1969
DUNFEE, EMERY S.	1964
JOHNSTON, JOHN L.	1956
JOLLY, FRANK H.	1970
LEMASTER, LELAN K.	1961
WORTHINGTON, ROBERT	1958
WRIGHT, WELCOME E.	1953

DPOT - DROP-OUTS
EXCD - EXCEPTIONAL CHILDREN

AUTHOR	DATE
CLARK, JAMES V.	1967
FRAZIER, WILLIAM D.	1966

DPOT - DROP-OUTS
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
BOWSER, JAMES A.	1960
CLARK, JAMES V.	1967
FALKENSTINE, JAMES C	1965
FRAZIER, WILLIAM D.	1966
GADBOIS, ROBERT L.	1968
GILBREATH, TOMMY D.	1971
SILVER, HARVEY A.	1967
WHITE, LELAND W.	1966

DRAF - DRAFTING/DRAWING
IND. - INDUSTRY

AUTHOR	DATE
BARBER, CARL S.	1967

DRAF - DRAFTING/DRAWING
CPTR - COMPUTER

AUTHOR	DATE
BENJAMIN, NEAL B.	1969
RANDEL, STEPHEN V.	1957

EQIP - EQUIPMENT
FACP - FACILITY PLANNING

AUTHOR	DATE
MC GAW, SIDNEY E.	1952
ROSS, RAYMOND J.	1966
WINEGAR, GARY H.	1969

EVFA - EVALUATION - FACULTY
TEEF - TEACHER EFFECTIVENESS

AUTHOR	DATE
CAIN, JOHN N.	1970
GIANINI, PAUL C.	1968
HAMMACK, CHARLES R.	1967
LOEPP. FRANZIE L.	1970
OLIVER, WILMOT F.	1967
WILLIAMS III, WALTER	1963

EVPN - EVALUATION - PERSONNEL
ATTD - ATTITUDE

AUTHOR	DATE
BALL. JOHN E.	1971
DOELLINGER, KEITH E.	1971
ELLIOTT, BURTON L.	1971
GISRIEL, AUSTIN E.	1959
HOERNER, HARRY J.	1969
JONES. GUY R.	1971
KAISER, RONALD E.	1971
KREPEL. WAYNE J.	1967
LE BLANC, DARRELL R.	1971
LYBARGER, ALVIN E.	
MONROE. ALLEN L.	1970
MUND. RICHARD G.	1970
ROBERTS, EDWARD R.	1971
STANFIELD, FOSTER A.	1971
WALDORF, ROBERT J.	1971

EVPR - EVALUATION - PROGRAM
GRAD - GRADUATE PROGRAMS

AUTHOR	DATE
BALDWIN, THOMAS R.	1971
DEVLIN. LEON G.	1971
MORELAND JR, HENRY C	1970
PERSHING, REX W.	1970
SLATER, JOHN B.	1970

EVPR - EVALUATION - PROGRAM
TEED - TEACHER EDUCATION

AUTHOR	DATE
ASHLEY, LAWRENCE F.	1936
BAKER. GEORGE L.	1970
BALDWIN, THOMAS R.	1971
BELL. CHARLES L.	1964
BRANTNER, SEYMOUR T.	1962
BRO, RONALD D.	1971
BRUCE, PHILLIP L.	1964
CAIN, CECIL R.	1958
CALLEN. LOUIS J.	1952
CARLSEN, DARVEY F.	1961
CHATFIELD, WILLIAM D	1955
COLEMAN, JAY M.	1971
COLEMAN, WAYNE D.	1967
DEVLIN, LEON G.	1971
DUNCAN. GLENN S.	1950
ECKER. LOUIS G.	1965
EPHRAIM, JOHN	1969
ERWIN, WILLIAM R.	1963
FAGAN. BERNARD T.	1970
FRANKSON, CARL E.	1948
GALLINGTON, RALPH O.	1947
GAVIN, GORDON O.	1968
GIFFORD, KENNETH K.	1970
GINTHER, RICHARD E.	1964
HANKAMMER, OTTO A.	1936
HELTON, H. L.	1958
HILL. CHARLES R.	1950
HOOTS JR, WILLIAM R.	1966
HOOVER. ROGER L.	1967
HUNTINGTON, HAROLD A	1940
HYDER. CARROLL R.	1971
JACKEY. DAVID F.	1933
JOHNSON, RAYMOND C.	1971
KERWOOD, ROBERT V.	1967
KLABENES. ROBERT E.	1971
KOHLER. RODERICK G.	1952
KOO. PO-YEN	1968
LINDAU. ORA F.	1968
LOATS. HENRY A.	1950
MANSFIELD, ROBERT T.	1959
MARBURGER, EDWARD F.	1948
MILLER. JAMES A.	1971
MILLS. EARL S.	1971
MITCHELL, JOHN	1954
NAIR, RALPH K.	1950
NIELSEN, ERWIN E.	1969
PAWELEK, STANLEY J.	1941
POLESZAK, LEONARD J.	19
PROCTOR, BERNARD S.	1950
REESE. ROBERT M.	1954
RUDISILL, ALVIN F.	1969
SARGENT, WILLIAM T.	1956
SEXTON. WILLIAM E.	1965
SIMONS. JEROLD J.	1967
SINGLETARY, THOMAS A	1968
SLATER. JOHN B.	1970
STEPHENSON, LESLIE F	1958
STONER, WILLIAM D.	1940
THATCHER, GLENN M.	1970
TOWERS. EDWARD R.	1956
WALLIS. DONALD F.	1965
WILBER. GEORGE O.	1941
WILLIAMS, WILLIAM A.	1959
WINTERS. KENNETH W.	1970
WOMMACK, CHARLES H.	1967

EVST - EVALUATION - STUDENT
ELEL - ELECTRICITY/ELECTRONICS

AUTHOR	DATE
FOLEY JR, JOHN P.	1968
GARNER, CAREY C.	1969
LYONS. RICHARD A.	
SMITH. BRANDON B.	1968

EXCD - EXCEPTIONAL CHILDREN
METH - METHODS

AUTHOR	DATE
BAUGRUD, KIM J.	19
JACKMAN. DUANE A.	1961
OLSON, DAVID O.	19

EXPR - EXPERIMENTAL STUDIES
GUID - GUIDANCE AND COUNSELING

AUTHOR	DATE
GOFF. WILLIAM H.	1967

EXPR - EXPERIMENTAL STUDIES
MNIP - MANIPULATIVE

AUTHOR	DATE
ALEXANDER, WILLIAM F	1969
ARVEY, RICHARD D.	1970
AUER, HERBERT J.	1971
BIEKERT, RUSSELL G.	1971
BLANKENBAKER, EDWIN	1970
BLANKENBAKER, E. K.	1970
COOVER, SHRIVER L.	1941
HAILES, CHARLES W.	1971
HENAK, RICHARD M.	1971
HOFER, ARMAND G.	1963
HULL, THOMAS F.	1964
HURLEY, CARL E.	1971
JOLLY, FRANK H.	1970
KRUPPA, RICHARD A.	1970
MARTINEZ, PETE	1970
NANNAY, ROBERT W.	1970
NELSON, ORVILLE W.	1967
NORTON, ROBERT E.	1967
PRITCHARD, MIRIAM C.	1937
REBHORN, ELDON A.	1972
ROWLETT, JOHN D.	1960
SNYDER, VANCE B.	1960
SOMMER, SEYMOUR A.	1971
WAISNER, GARY L.	1970
WEFFENSTETTE, WALTER	1965
WILLEMS, ALVIN E.	1970
WORTHINGTON, ROBERT	1958

EXPR - EXPERIMENTAL STUDIES
PROB - PROBLEM SOLVING

AUTHOR	DATE
BABCOCK, JAMES G.	1969
BRENNER, CHARLES J.	1968
CORNWELL, RAYMOND L.	1961
ROWLETT, JOHN D.	1960

EXPR - EXPERIMENTAL STUDIES
SKIL - SKILL

AUTHOR	DATE
BIEKERT, RUSSELL G.	1971
BLANKENBAKER, EDWIN	1970
BLANKENBAKER, E. K.	1970
HAILES, CHARLES W.	1971
HENAK, RICHARD M.	1971
HEYEL, CLARENCE L.	1967
HOFER, ARMAND G.	1963
HURLEY, CARL E.	1971
JOLLY, FRANK H.	1970
LINDAHL, LAWRENCE G.	1944
MANCHAK, PAUL J.	1965
MARTINEZ, PETE	1970
NANNAY, ROBERT W.	1970
NELSON, ORVILLE W.	1967
NORTON, ROBERT E.	1967
OLSON, DAVID D.	19
REBHORN, ELDON A.	1972
ROWLETT, JOHN D.	1960
SCHACHT, ROBERT C.	1971
SNYDER, VANCE B.	1960
SOMMER, SEYMOUR A.	1971
WAISNER, GARY L.	1970
WILLEMS, ALVIN E.	1970
WORTHINGTON, ROBERT	1958

GRAD - GRADUATE PROGRAMS
I.A. - INDUSTRIAL ARTS

AUTHOR	DATE
FEIRER, JOHN L.	1946
MORELAND JR, HENRY C	1970
MORELAND JR, HENRY C	1970
PERSHING, REX W.	1970
WIGEN, RAY A.	1957

HIED - HIGHER EDUCATION
I.A. - INDUSTRIAL ARTS

AUTHOR	DATE
ALLEN, WILLARD A.	1963
BAAB, CLARENCE T.	1950
BALL, JOHN E.	1971
BATESON, WILLARD M.	1954
BENDIX, JOHN L.	1965
CARLSEN, DARVEY E.	1961
COLEMAN, JAY M.	1971
CRIST, LEROY	1961
CUMMINS, CARL C.	1957
DARDEN, BYRNES L.	1951
DECKER, GEORGE C.	1943
DIRKSEN, DENNIS A.	1969
FEIRER, JOHN L.	1946
FEIRER, JOHN L.	1946
GAVIN, GORDON O.	1968
GHEEN, W. LLOYD	1970
GIFFORD, KENNETH K.	1970
GINTHER, RICHARD E.	1964
GRAHAM, GREGORY S.	1971
HANKAMMER, OTTO A.	1936
HAWKINS, LESLIE V.	1953
HENRY, GEORGE F.	1954
HISER, PAUL T.	1958
JACKSON, PETER A.	1965
KIRKWOOD, JAMES J.	1970
KIST, KEVIN W.	1970
KURTH, EDWIN L.	1955
LARSON, IRVING W.	1969
MALEY, DONALD	1949
MESSMAN, WARREN B.	1963
MORELAND JR, HENRY C	1970
MORELAND JR, HENRY C	1970
NELSON, REX A.	1963
O DELL, ROBERT D.	1963
O NEILL, JOHN N.	1971
PERSHING, REX W.	1970
PIERSALL, ARNOLD C.	1964
REAMS, JAKE W.	1963
ROBERTS, NORMAN N.	1967
SILVIUS, HAROLD G.	1946
STONER, WILLIAM D.	1940
TORRES, LEONARD	1963
TUCKER, CASEY A.	1965
VACEK, WILLIAM L.	1962
VAUGHN, MAURICE S.	1967
WARGO, WILLIAM D.	1968
WEBER, EARL M.	1961
WIGEN, RAY A.	1957
ZOPPETTI, MATTHEW	1970

INPG - INNOVATIVE PROGRAMS
CNST - CONSTRUCTION

AUTHOR	DATE
BERGSTROM, PHILIP G.	1970
KUWIK, PAUL D.	1970
PETER, RICHARD F.	1970
WEST, WILLIAM E.	1969
YOUNG, DARIUS R.	1968

INSR - IN-SERVICE EDUCATION
IND. - INDUSTRY

AUTHOR	DATE
ADAMS, AARON F.	1961
COCHRAN, GEORGE C.	1967
CUTLER, THEODORE H.	1948
DIRKSON, RALPH E.	1969
ESTLE, EDWIN F.	1966
FURIA, JOHN J.	1930
LINE, JOHN D.	1971
ROSENQUIST, BARBARA	1971
SCHMITT, VICTOR A.	1953
WHEELER, EDWARD A.	1965

MAIN - MAINTENANCE
EQIP - EQUIPMENT

AUTHOR	DATE
MC ARTHUR, ROSS J.	1955

METH - METHODS
TEED - TEACHER EDUCATION

AUTHOR	DATE
CROWDER, GENE A.	1968
DAWSON, KENNETH F.	1965
DITLOW, GEORGE H.	1956
DUNFEE, EMERY S.	1964
FRYE, BILL J.	1971
GHEEN, W. LLOYD	1970
GHEEN, WILLIAM L.	1970
HARDER, JACOB D.	1970
JACKMAN, DUANE A.	1961
JELDEN, DAVID L.	1960
KING, FRANKLIN J.	19
KRUGER, JOHN M.	1971
KURTH, EDWIN L.	1955
LEASE, ALFRED A.	1964
LOEPP, FRANZIE L.	1970
LOW, FRED G.	1963
MILLS, EARL S.	1971
MITCHELL, JOHN	1954
OLIVER, WILMOT F.	1967
RAY, J. EDGAR	1944
SEXTON, WILLIAM E.	1965
THATCHER, GLENN M.	1970
THATCHER, GLENN M.	1970

MNIP - MANIPULATIVE
METH - METHODS

AUTHOR	DATE
ALEXANDER, WILLIAM F	1969
ALLEN, JOHN C.	1969
AUER, HERBERT J.	1971
BENSEN, JAMES M.	1967
BENSON, M. J.	1967
BIEKERT, RUSSELL G.	1971
BLANKENBAKER, E. K.	1970
CUSHING, NELSON N.	1971
DOTY, CHARLES R.	1968
FLUG, EUGENE R.	1967
GRUNWALD, WALTER	1968
GUNTHER, THERESA C.	1931
HATLES, CHARLES W.	1971
HANSON, ROBERT R.	1970
HERR, JAMES F.	1970
HERR, JAMES F.	19
HOFER, ARMAND G.	1963
HULL, THOMAS F.	1964
HURLEY, CARL E.	1971
JOLLY, FRANK H.	1970
KRUGER, JOHN M.	1971
MARTINEZ, PETE	1970
MC EOWEN, ROBERT H.	1967
MEYER, JOHN M.	1969
NANNAY, ROBERT W.	1970
NORTON, ROBERT E.	1967
ORR, WILLIAM H.	1970
REBHORN, ELDON A.	1972
ROWLETT, JOHN D.	1960
SNYDER, VANCE B.	1960
SOMMER, SEYMOUR A.	1971
WEFFENSTETTE, WALTER	1965
WILLEMS, ALVIN E.	1970
WORTHINGTON, ROBERT	1958

PRPL - PROGRAM PLANNING
TEED - TEACHER EDUCATION

AUTHOR	DATE
BAAB, CLARENCE T.	1950
BEKTON, WILLIAM E.	1965
CAULEY, MICHAEL J.	
CHARLESWORTH, KENNET	1968
DAVIS, JIM L.	1966
DRAZEK, STANLEY J.	1950
EPHRAIM, JOHN	1969
ERWIN, WILLIAM R.	1963
FAHRLANDER, DANIEL C	1972
FRYE, BILL J.	1971
GILBERT, HAROLD G.	1955
JOHNSON, RAYMOND C.	1971
MANESS, MARION T.	1969
MILLER, JAMES A.	1971
PARKS, GERALD A.	1969
PAYNE, AM V.	1965
ROBERTS, NORMAN N.	1967
RYAN, CHESTER M.	1963
SCHAEFER, CARL J.	1959
SECHREST, CHARLES H.	1953
WILBER, GEORGE O.	1941
WILSON, WADE	1954

READ - READING
METH - METHODS

AUTHOR	DATE
HANSBURG, HENRY	1935
HOUSEHOLDER, DANIEL	1963
LEASE, ALFRED A.	1964
RICHARDS, KENVYN B.	1970
WOLFE, JAMES M.	1970

SELC - SELECTION
TEED - TEACHER EDUCATION

AUTHOR	DATE
BENSON, WILLARD A.	1959
CUMMINS, CARL C.	1957
FOLEY JR, DENIS J.	1967
HENRY, GEORGE F.	1954
JOHNSON, RUFUS C.	1949
MALLARY, BENJAMIN E.	1932
SCHERER, HARLAN L.	1960
SCHILL, WILLIAM J.	1961
STRO, EINAR F.	1949

SKIL - SKILL
METH - METHODS

AUTHOR	DATE
ALLEN, JOHN C.	1969
BIEKERT, RUSSELL G.	1971
BLANKENBAKER, E. K.	1970
CUSHING, NELSON N.	1971
DOTY, CHARLES R.	1968
ESTLE, EDWIN F.	1966
FLUG, EUGENE R.	1967
GRUNWALD, WALTER	1968
GUNTHER, THERESA C.	1931
HAILES, CHARLES W.	1971
HANSON, ROBERT R.	1970
HEYEL, CLARENCE L.	1967
HOFER, ARMAND G.	1963
HURLEY, CARL E.	1971
JOLLY, FRANK H.	1970
LICHTBLAU, LEONARD R	1958
LINDAHL, LAWRENCE G.	1944
LOW, FRED G.	1963
MANCHAK, PAUL J.	1965
MARTINEZ, PETE	1970
MEYER, JOHN M.	1969
NANNAY, ROBERT W.	1970
NISH, DALE L.	1967
NORTON, ROBERT E.	1967
OLSON, DAVID O.	19
ORR, WILLIAM H.	1970
REBHORN, ELDON A.	1972
ROWLETT, JOHN D.	1960
SCHACHT, ROBERT C.	1971
SNYDER, VANCE B.	1960
SOMMER, SEYMOUR A.	1971
WILLEMS, ALVIN E.	1970
WORTHINGTON, ROBERT	1958

SUPR - SUPERVISION
I.A. - INDUSTRIAL ARTS

AUTHOR	DATE
CHRISTOFFEL, FREDERI	1960
GILBERT, HAROLD G.	1955
JOHNSON, VERNER B.	1966
MC ROBBIE, J. M.	1963
MICHEELS, WILLIAM J.	1941
SARGENT, WILLIAM T.	1956
SCHANK, KENNETH L.	1965
SCHORLING, HORACE O.	1950
SECHREST, CHARLES H.	1953
SECKENDORF, ROBERT S	1960
SMITH, IRVING G.	1969
STEEB, RALPH V.	1959
STEVENSON, JAMES E.	1953
TAXIS, DAVID O.	1962

SUPR - SUPERVISION
I.E. - INDUSTRIAL EDUCATION

AUTHOR	DATE
BOWDOIN, PAUL	1966
BRANDON, GEORGE L.	1952
CRESSMAN, PAUL L.	1934
LESTER, SEELIG L.	1944
PETERS, DONALD F.	1959

SUPR - SUPERVISION
IND. - INDUSTRY

AUTHOR	DATE
CRUDDEN, PAUL B.	1944
EDWARDS, JOHN T.	1970
LINE, JOHN D.	1971
LOVELESS JR, SIDNEY	1969
MANSFIELD, WESLEY B.	1970
PARNES, SIDNEY J.	1954
RIETH, CLAUDE E.	1966
SCHOEPPLER, JACOB	1958
STEWART, WILLIAM J.	1968

TEED - TEACHER EDUCATION
GRAD - GRADUATE PROGRAMS

AUTHOR	DATE
BALDWIN, THOMAS R.	1971
DEVLIN, LEON G.	1971
FEIRER, JOHN L.	1946
MORELAND JR, HENRY C	1970
SLATER, JOHN B.	1970

TEED - TEACHER EDUCATION
RECT - RECRUITMENT

AUTHOR	DATE
CONLEY, FRANKLIN	19
CRIST, LEROY	1961
FOLEY JR, DENIS J.	1967
GERBRACHT, CARLTON J	1949
LARSON, IRVING W.	1969
MALLARY, BENJAMIN E.	1932
MELLMAN, ROBERT A.	1957
MESSERSCHMIDT, DALE	1967
RESSLER, RALPH	1966
RUTHERFORD, WILLIAM	1962
SCHERER, HARLAN L.	1960
SCHILL, WILLIAM J.	1961
SENTENEY, GEORGE W.	1955
SIRO, EINAR E.	1949
SOURS, CHARLES F.	1969
WIERSTEINER, SAMUEL	1970

TEST - TEST DEVELOPMENT
ELEL - ELECTRICITY/ELECTRONICS

AUTHOR	DATE
HERRING, TOD H.	1962
HILL, EDWIN K.	1968
HOFER, JARREL	1969
JOHNSON, DOUGLAS H.	1969
KOUTNIK, PAUL G.	1968
LYONS, RICHARD A.	
MORGAN SR, LEO D.	1966
PRATZNER, FRANK C.	1969

TRNG - TRAINING
IND. - INDUSTRY

AUTHOR	DATE
ANDERWALD, CARL J.	1947
ATTEBERRY, PAT H.	1954
BADER, LOIS	1932
BAKER, ALFRED E.	1943
BROPHY, JOHN M.	1947
BROWN, WALTER C.	1954
COCHRAN, GEORGE C.	1967
CRUDDEN, PAUL B.	1944
CUTLER, THEODORE H.	1948
DANAHER, EUGENE I.	1946
EVANCHO, MICHAEL	1947
FAULDS, VINCENT R.	1956
FLAHERTY, HUGH	1944
FRYKLUND, VERNE C.	1933
GOSSAGE, LOYCE C.	1967
IACOBELLI, JOHN L.	1969
KAPLAN, HAROLD	1956
LAND, SAMUEL L.	1931
LITTLE, RICHARD L.	1968
PEDERSEN, GEORGE L.	1957
ROSENQUIST, BARBARA	1971
SHEFFIECK JR, CHARLE	1969
SORENSEN, RONALD L.	1964
STEGEMAN, ARTHUR L.	1957
TIERNEY, WILLIAM F.	1952
TREGILGUS, EARL P.	1954
WHITE, STROLLER T.	1967
ZOOK, WAYNE H.	1968

VOGI - VOCATIONAL GUIDANCE
EVPR - EVALUATION - PROGRAM

AUTHOR	DATE
ANDREWS JR, JOE R.	1968
BARROW, RICHARD W.	1969
BEACH, CHARLES K.	1941
BOTTOMS, JAMES E.	1965
BRIGHAM, ELDEN L.	1950
CLEVELAND, JOHN M.	1961
CRAWFORD, JOHN E.	1941
CRUMPTON, CHARLES R.	1952
CUONY, EDWARD R.	1953
EISENBERG, WILLIAM L	1947
ENZIAN, HAROLD J.	1967
ERWIN, CLIFFORD H.	1963
GILBREATH, TOMMY D.	1971
HILL, FREDERICK W.	1942
HOBBS, ADDISON S.	1971
HODGSON, PAUL M.	1965
HUTCHERSON, ETHEL M.	1966
JENSEN, THOMAS R.	1968
KURTZ, HARMON H.	1959
MASON, WILLIAM H.	1970
MEIER, MARY A.	1969
NEWBURY, DAVID N.	1967
SHEPPARD, LAWRENCE E	1967
SHIBLES, FOSTER M.	1971
STENSON, ORVIS J.	1971
STORMER, DONALD L.	1967
WELSH, DONALD J.	
WIEHE, THEODORE E.	1954

VOGI - VOCATIONAL GUIDANCE
EVST - EVALUATION - STUDENT

AUTHOR	DATE
CLAWSON, LA VERE E.	1967
CRAWFORD, JOHN E.	1941
HANKIN, EDWARD K.	1947
HARLAN, OWEN	1953
HEGGEN, JAMES R.	1967
JENKINS, FARRELL T.	1969
JOHNSON, DONALD H.	1966
KRUBECK, FLOYD E.	1954
LINNICK, IDA	1949
LOWENSTEIN, NORMAN	1955
LUTZ, RONALD J.	1969
PASSMORE, JAMES L.	1968
PHILLIPS, DONALD S.	1968
REISENGER, RAYMOND H	1970
ROLLINGS, JAMES W.	1967
THORPE, CLAIBURNE B.	1968
WHINFIELD, RICHARD W	1969
WYNNE, ROBERT I.	1968

VOGI - VOCATIONAL GUIDANCE
HS - HIGH SCHOOL

AUTHOR	DATE
ALSUP, REA T.	1967
COHEN, JERRY M.	1969
COHEN, LOUIS A.	1965
CRUMPTON, CHARLES R.	1952
D COSTA, AYRES G.	1968
DOERR, JOHN J.	1967
FRISBY, RUSSELL C.	1968
HAYES, BILLY D.	1968
JENSEN, THOMAS R.	1968
JOHNSON, ROBERT O.	1968
JOHNSON, THOMAS P.	1967
KOHL, ERNEST O.	1949
KRUBECK, FLOYD E.	1954
KURTZ, HARMON H.	1959
LOWENSTEIN, NORMAN	1955
MARSHALL JR,THOMAS C	1941
MASON, WILLIAM H.	1970
MORTON, BERRY E.	1950
PLUSCH, JAMES O.	1967
PRUSKI, JOHN	1958
REISENGER, RAYMOND H	1970
ROBINSON, CLARK N.	1947
ROLLINGS, JAMES W.	1967
SCHULTZ, IRWIN J.	1949
SOLIMAN, ABDALLA M.	1967
STORMER, DONALD L.	1967
TATUM JR, JULIAN P.	1967
WERNER, WAYNE E.	1969

VOGI - VOCATIONAL GUIDANCE
JUCO - JUNIOR COLLEGE

AUTHOR	DATE
BOLICK, GERALD M.	1968
BRADLEY, HARRY L.	1967
BRUE, JAMES F.	1969
COMBS, STANLEY L.	1948
DAUGHERTY, RONALD D.	1971
GEARING, PHILLIP	1970
HAKANSON, JOHN W.	1967
HAYES, BILLY D.	1968
HELBERG, DONALD H.	1969
KOLLIN, ROBERT	1971
MORGAN, JIMMY B.	1969
OMAN, RONALD N.	1971
SHAW, GERALD H.	1968
SMITH, ROYAL E.	1969

STILLERMAN, MANUEL	1970
STROUT, GEORGE M.	1970
WALSTON, HARRY W.	1970
WANGER, RUTH	1971
WASHBURN, KENNETH R.	1971
WHINFIELD, RICHARD W	1969
WYNNE, ROBERT L.	1968

VOGI - VOCATIONAL GUIDANCE
PLAC - PLACEMENT

AUTHOR	DATE
BARNETT, LEONARD J.	1969
CAMBRIA, SOPHIA T.	1945
CAMBRIA, SOPHIA T.	1945
COHEN, CHESTER G.	1970
CUONY, EDWARD R.	1953
ELMGREN JR, G. THEOD	1963
ERWIN, CLIFFORD H.	1963
FLUCK, BRYAN V.	1970
FULLER, FOSTER D.	
HAYES, BILLY D.	1968
HILLSMAN, SALLY	1970
JACKSON, THOMAS A.	1962
MAC DONALD, MANLEY F	1944
NIENHAUS, BERNARD J.	1971
ROSENQUIST, BARBARA	1971
SHERRELL, EUGENE G.	1969
TICHENOR, HAROLD D.	1967
TREGO, JOHN W.	1958
WANGER, RUTH	1971
WASHBURN, KENNETH R.	1971
WOOD, GRANT R.	1970
WRIGLEY, MARGARET	1968
ZOOK, WAYNE H.	1968
ZUDAK, LAWRENCE S.	1969

VOGI - VOCATIONAL GUIDANCE
PRPL - PROGRAM PLANNING

AUTHOR	DATE
BRAME, WILLIAM E.	1967
CLEVELAND, JOHN M.	1961
CRUNKILTON, JOHN R.	1969
DREW, ALFRED S.	1962
DUKES, GLENN F.	1969
GELINAS, PAUL J.	1954
GORDON, KENNITH G.	1971
JURKOWITZ, EUGENE L.	1968
NEWBURY, DAVID N.	1967
NIENHAUS, BERNARD J.	1971
SHAW, GERALD H.	1968
WIJEYEWARDENE, JALUT	1960
WILBUR, LOUISE	1931
WOLLINGTON, JAMES M.	1966

VOGI - VOCATIONAL GUIDANCE
T.I. - TRADES AND INDUSTRIES

AUTHOR	DATE
COOKE, ROBERT L.	1932
CRUMPTON, CHARLES R.	1952
DOERR, JOHN J.	1967
DROST, JIM L.	1970
FURLONG, JOHN	1957
HANEY, PHILIP H.	1949
MORGAN, DARYLE W.	19
MOUTOUX, ALFRED C.	1948
WALDORF, ROBERT J.	1971

PHIL - PHILOSOPHY
ADMN - ADMINISTRATION

AUTHOR	DATE
BACKUS, KERBY D.	1968
BAILY, ATHOL R.	1949
DAVISON, HAROLD J.	1931
FENDLASON, DONALD W.	1969
HAMMOND, ROBERT G.	1956
KREPEL, WAYNE J.	1967
MAGISOS, JOEL H.	1968
MALIK, JOSEPH A.	1968
MASON, WILLIAM H.	1970
MC GIVNEY, JOSEPH H.	1967
MC KINNEY, FLOYD L.	1969
MC NEIL, JACKSON M.	1968
SHELTON, JOHN A.	1968
THORP, JOHN H.	1945
WEAGRAFF, PATRICK J.	1971
ZULLINGER, JOHN	1969

PHIL - PHILOSOPHY
COUN - COUNSELING

AUTHOR	DATE
CLEVELAND, JOHN M.	1961
HYDE, ELDON K.	1968
LOOSLE, DARRELL K.	1967

PHIL - PHILOSOPHY
HIED - HIGHER EDUCATION

AUTHOR	DATE
CLABAUGH, RICHARD D.	1971
CLECKLER, JAMES D.	1969
FENDLASON, DONALD W.	1969
HAMMER, GARLAND G.	1951
HYDE, ELDON K.	1968
MALIK, JOSEPH A.	1968
SHERMAN, DOUGLAS R.	1956
STEGMAN, GEORGE K.	1962

PHIL - PHILOSOPHY
I.A. - INDUSTRIAL ARTS

AUTHOR	DATE
BACKUS, KERBY D.	1968
BAIRD, RONALD J.	1960
BIEDLER, JOHN S.	1958
CARTER, JOHN P.	1970
FALES, ROY G.	1948
HALL, JAMES R.	1970
HAWSE, JOHN E.	1964
HORNBLAKE, R. LEE	1939
HUXOL, ROBERT L.	1954
KACHEL, STANLEY	1967
MASON, WILLIAM H.	1970
MC CLELLAN, LARRY D.	1971
MEYER, HARVEY K.	1951
NIELSEN, ARNOLD M.	1970
PATE JR, DOVE H.	1970
SVENDSEN, ETHAN A.	1951
TALKINGTON, JOE E.	1962
THOMAS, CHARLES L.	1964
THOMAS, JOSEPH K.	1957
THORP, JOHN H.	1945
TSUJI, THOMAS T.	1967
WHITESEL, JOHN A.	1940
WOCKENFUSS, WILLIAM	1960
WOODY JR, EARL T.	1963

PHIL - PHILOSOPHY
I.E. - INDUSTRIAL EDUCATION

AUTHOR	DATE
ANDERSON, LOWELL D.	1969
BAILY, ATHOL R.	1949
DAVISON, HAROLD J.	1931
HAMMER, GARLAND G.	1951
HAMMOND, ROBERT G.	1956
KARR, DONALD L.	1969
MC KEE, RONALD R.	1971
MOELLER, CARL A.	1961
RALSTROM, STIG E.	1969
ROBINSON, WALTER J.	1950
ZULLINGER, JOHN	1966

PHIL - PHILOSOPHY
TCED - TECHNICAL EDUCATION

AUTHOR	DATE
DAVIS, WARREN C.	1936
HIRSCHI, HARVEY C.	1969
HYDE, ELDON K.	1968
SLATTERY, RAYMOND A.	1969

PHIL - PHILOSOPHY
T.I. - TRADES AND INDUSTRIES

AUTHOR	DATE
HAMMER, GARLAND G.	1951
KARR, DONALD L.	1969
SEARS JR, WILLIAM P.	1930

PHIL - PHILOSOPHY
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
CARR, EVA R.	1970
CLECKLER, JAMES D.	1969
DASGUPTA, DEBENDRA C	1932
DAVISON, HAROLD J.	1931
DAVIS, WARREN C.	1936
DYKEHOUSE, JAY	1950
FAHRLANDER, DANIEL C	1972
HIRSCHI, HARVEY C.	1969
HYDE, ELDON K.	1968
KELLER, LOUISE J.	1969
KREPEL, WAYNE J.	1967
LAHREN, JAMES A.	1970
LOOSLE, DARRELL K.	1967
MAGISOS, JOEL H.	1968
MC GIVNEY, JOSEPH H.	1967
MC NEIL, JACKSON M.	1968
MOELLER, CARL A.	1961
MORGAN, JIMMY B.	1969
NEASHAM, ERNEST R.	1968
SCHREIBER, ERNEST	1967
SEARS JR, WILLIAM P.	1930
SHELTON, JOHN A.	1968
SHEPARD, JON M.	1968
SHERMAN, DOUGLAS R.	1956
SLATTERY, RAYMOND A.	1969
SPRECHER, ROBERT E.	1970
WEAGRAFF, PATRICK J.	1971

PRED - PREDICTION
PRTR - PERSONALITY TRAITS

AUTHOR	DATE
ATHANASIOU, ROBERT B	1969
AUCKER, JOHN R.	1970
BEACH, CHARLES K.	1941
BEEM, HARLEY D.	1967
FLEMING, JOSEPH W.	1937
GIACHINO, JOSEPH W.	1949
JELDEN, DAVID L.	1971
KOUTNIK, PAUL G.	1968
MILLER, AARON J.	1966
SANDMAN, CHARLES W.	1969
STONE, THOMAS C.	1969
STOUGHTON, ROBERT W.	1955
SULLIVAN, THOMAS W.	1967
VACEK, WILLIAM L.	1962
ZIMMER, THEODORE A.	1969

PRED - PREDICTION
VOGI - VOCATIONAL GUIDANCE

AUTHOR	DATE
BEACH, CHARLES K.	1941
BEEM, HARLEY D.	1967
CHILSON, JOHN S.	1969
COHEN, JERRY M.	1969
COX, STEVEN G.	1968
ELLIOTT, EARL S.	1967
EVANCHO, MICHAEL	1947
FLEMING, JOSEPH W.	1937
FRYKLUND, VERNE C.	1933
GRIFFIN, JAMES F.	1970
HARRIS, VIRGINIA J.	1961
HAUGO, RICHARD R.	1969
JENKINS, FARRELL T.	1969
KRANTZ, MATTHEW B.	1970
KUNTZ, ELMER L.	1968
LARSON, RAYMOND H.	1951
MICHIE, JACK	1968
MILLER, AARON J.	1966
MILLER, CLARENCE M.	1968
MOORE, LELAND B.	1970
NESWICK, LAWRENCE G.	1971
QUICK, OTHO J.	1954
RICHARDSON, ROBERT B	1967
SANDMAN, CHARLES W.	1969
SCHULTZ, IRWIN J.	1949
THORPE, CLAIBURNE B.	1968
WOOLDRIDGE, ROBERT E	1961
YOUNG, ROBERT W.	1966

PROB - PROBLEM SOLVING
ININ - INDIVIDUALIZED INSTRUCTION

AUTHOR	DATE
FINCH, CURTIS R.	1969

PROG - PROGRAMMED LEARNING
EVPR - EVALUATION - PROGRAM

AUTHOR	DATE
CHRISMAN, JOSEPH P.	1970
DANNENBERG, RAYMOND	1965
HOCH, EMIL H.	1969
SHULL, HOWARD I.	1969

INDEX FOR DISSERTATION ABSTRACTS BY THREE DESCRIPTORS

CRCN - CURRICULUM CONSTRUCTION
JRHS - JUNIOR HIGH SCHOOL
EXCD - EXCEPTIONAL CHILDREN

AUTHOR	DATE
WENTZ, CHARLES H.	1969

CURR - CURRICULUM
TEED - TEACHER EDUCATION
EVPR - EVALUATION - PROGRAM

AUTHOR	DATE
CHATFIELD, WILLIAM D	1955
COLEMAN, WAYNE D.	1967
DUNCAN, GLENN S.	1950
HOOTS JR, WILLIAM R.	1966
HOOVER, ROGER L.	1967
JACKEY, DAVID F.	1933
RUDISILL, ALVIN E.	1969
SEXTON, WILLIAM E.	1965
WINTERS, KENNETH W.	1970

EQIP - EQUIPMENT
FINA - FINANCES
BDGT - BUDGET

AUTHOR	DATE
BUNTEN, CHARLES A.	1955

EXPR - EXPERIMENTAL STUDIES
CURR - CURRICULUM
JRHS - JUNIOR HIGH SCHOOL

AUTHOR	DATE
REMICK, EDWARD L.	
SPENCE, WILLIAM P.	1957

EXPR - EXPERIMENTAL STUDIES
FILM - FILMS
METH - METHODS

AUTHOR	DATE
CROWDER, GENE A.	1968
DE OLC, ALAN R.	1971
FAZZINI, PHILLIP A.	1970
GETTLE, KARL E.	1970
HOFER, ARMAND G.	1963
ILOTT, JOHN F. D.	19
JOLLY, FRANK H.	1970
KOBLE, RONALD L.	1963
LUCK, WILLIAM E.	1966
NEVITT, THOMAS A.	1966
PIERSALL, ARNOLD C.	1964
REPP, VICTOR E.	1970
SHULL, HOWARD I.	1969
WRIGHT, WELCOME E.	1953

EXPR - EXPERIMENTAL STUDIES
METH - METHODS
I.A. - INDUSTRIAL ARTS

AUTHOR	DATE
FAILES, CHARLES W.	1971
LEMASTER, LELAN K.	1961
MC CAGE, RONALD D.	1970
NEWTON, ROBERT E.	1970
SOMMER, SEYMOUR A.	1971
WILKES, DORAN F.	1966

EXPR - EXPERIMENTAL STUDIES
METH - METHODS
TCED - TECHNICAL EDUCATION

AUTHOR	DATE
ARMSTRONG, WILLIAM H	1967
PORTER, CHARLES B.	1957
WILLEMS, ALVIN E.	1970

EXPR - EXPERIMENTAL STUDIES
METH - METHODS
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
ARMSTRONG, WILLIAM H	1967
BERTRAND, CLINT A.	1964
PUCEL, DAVID J.	1966
SCHACHT, ROBERT C.	1971

I.E. - INDUSTRIAL EDUCATION
METH - METHODS
HS - HIGH SCHOOL

AUTHOR	DATE
BAUGRUD, KIM J.	19
MANCHAK, PAUL J.	1965

MEDA - MEDIA
EXPR - EXPERIMENTAL STUDIES
HIED - HIGHER EDUCATION

AUTHOR	DATE
BABCOCK, JAMES G.	1969
SMITH, FREDDY J.	1970
WILKES, DORAN F.	1966
YEAGER, LOWERY D.	1965

METH - METHODS
I.A. - INDUSTRIAL ARTS
HS - HIGH SCHOOL

AUTHOR	DATE
ABROMAITIS, JOSEPH J	1969
BORRI, ROBERT	1942
LUCK, WILLIAM E.	1966
SVENDSEN, CLARENCE R	1970

PRPL - PROGRAM PLANNING
TCED - TECHNICAL EDUCATION
TEED - TEACHER EDUCATION

AUTHOR	DATE
MANESS, MARION T.	1969

PRPL - PROGRAM PLANNING
TCED - TECHNICAL EDUCATION
VOED - VOCATIONAL EDUCATION

AUTHOR	DATE
BESTOR, ROLLIE R.	1969
COTTON, GEORGE R.	1944
CROMER, CHALMERS A.	1970
DAVIS, WARREN C.	1936
FISHER, RICHARD E.	1956
GLAU, JON E.	1970
GRAY, KENNEY E.	1970
GUDITUS, CHARLES W.	1965
HERMAN, JAMES A.	1969
KEIM, WILLIAM E.	1966
LANGERMAN, PHILLIP D	1968
MANESS, MARION T.	1969
OLSEN, EUGENE A.	1968
SLATTERY, RAYMOND A.	1969
ZWEIBEL, MALCOLM C.	1968

PRPL - PROGRAM PLANNING
T.I. - TRADES AND INDUSTRIES
METH - METHODS

AUTHOR	DATE
ROSIN, WILLIAM J.	1969

TEED - TEACHER EDUCATION
TCED - TECHNICAL EDUCATION
EVFA - EVALUATION - FACULTY

AUTHOR	DATE
ANDREYKA, ROBERT E.	1969
GIANINI, PAUL C.	1968
HOLMEN, HOLGER F.	19

TEED - TEACHER EDUCATION
VOED - VOCATIONAL EDUCATION
EVFA - EVALUATION - FACULTY

AUTHOR	DATE
ARNOLD, DANIEL S.	1968
CAIN, JOHN N.	1970
FORREST JR, LEWIS C.	1970
OLIVER, WILMOT F.	1967
SUTTON, FRED C.	1961

PRPL - PROGRAM PLANNING
ADMN - ADMINISTRATION

AUTHOR	DATE
ACHILLES, CHARLES M.	1967
ASHCRAFT, NORMAN C.	1968
BARICH, DEWEY F.	1961
CANDOLI, I. C.	1967
ELIAS, JOHN E.	1970
FORBES, ROY H.	1970
FOWLER, HARMON R.	1970
FRYE, ROYE M.	1963
GORDON, KENNITH G.	1971
GORDON, LINDA	1971
GRAMBERG, MERLYN L.	1971
GRAY, KENNEY E.	1970
HELLAND, PHILLIP C.	1964
HOSTETLER, IVAN	1945
HUMBERT 3, JOHN J.	1967
JOHNSON, FRANKLIN R.	1969
JOHNSON, RAYMOND C.	1971
MEHAIL, SPIRO	1971
MELLINGER, BARRY L.	1972
MONTELLO, PAUL A.	1968
NEEDHAM, RAYMOND J.	1969
OLSEN, EUGENE A.	1968
PELLEGRIN JR, JOSEPH	1971
RESNICK, HAROLD S.	1970
ROBERTSON, LYLE R.	1968
SCHAEFER, CARL J.	1959
VAN DYKE, ARVID W.	1970
WEAGRAFF, PATRICK J.	1971

PRPL - PROGRAM PLANNING
COFS - COURSE OF STUDY

AUTHOR	DATE
AXELROD, AARON	1951
DAVIS, WARREN C.	1936
KELLY, MICHAEL V.	1968
ZABCIK, CALVIN L.	1969

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Agnor, Herbert, Emory
(Last name) (First name) (Middle name)

Exact Title MOTIVATION-HYGIENE FACTORS IN LOW ABILITY TRANSFER STUDENTS AND TECHNICAL-OCCUPATIONAL STUDENTS AT A COMMUNITY COLLEGE.

Degree granted Ph.D., Date 1970 No. of pages in report 109

Granted by Case Western Reserve University Cleveland, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study was designed to identify motivating characteristics of community college students which are related to their choice of educational programs, their academic achievement, and their persistence in college. In consideration of what seem to be unhealthy choices of transfer programs on the part of students with poor academic backgrounds, Herzberg's motivation-hygiene theory of mental health was selected as an appropriate theoretical approach.

The population of the research consisted of 224 low ability students who entered Cuyahoga Community College, Metropolitan Campus in September, 1968. During pre-registration orientation, these students completed Kahoe's *Job Motivation Inventory* (JMI), an objective motivation-hygiene inventory. Students were classified as hygiene-seeking according to Reschke's scheme of extreme scores: low motivation-low hygiene, high hygiene-low motivation, high motivation-low hygiene. Data were obtained from college records for student enrollment, choice of college program and cumulative grade point average for three consecutive quarters. Objective data were supplemented by interviews conducted in the Winter Quarter with a sample of twenty-one students.

Three hypotheses were tested for significance:

1. Hygiene-seeking students will choose transfer programs in proportionately larger numbers than will non-hygiene-seeking students;
2. Hygiene-seeking students will achieve low cumulative grade point averages in proportionately larger numbers than will non-hygiene-seeking students;
3. Hygiene-seeking students will remain enrolled in college in proportionately fewer numbers than will non-hygiene-seeking students.

For each hypothesis data were tested for significance at the .05 level with the chi square test.

In the Fall Quarter, program choices for female students were significantly different on the basis of motivation-hygiene classification and in the predicted direction. However, when changes of program for the Winter and Spring Quarters were considered, this difference did not persist. No significant differences in choice of program were found in any quarter for male students or the total student group.

No significant relationship was found between motivation-hygiene classification and cumulative college grade point average for any quarter. It was suggested that motivation to work is different from motivation to achieve good grades despite students' tendency to choose occupationally-oriented programs.

Significant differences in the predicted direction were found between hygiene-seeking students and non-hygiene-seeking students in persistence of enrollment into the Spring Quarter. It was suggested that this finding was also related to the college's liberal policy of dismissal and the effect of selective service enrollment of male students.

The most significant finding was the relatively small number of students classified as hygiene-seeking. Correlations between motivation scores and hygiene scores on the JMI were found to be .40 for males and .45 for females. These correlations were contrary to results of previous research with college students and raised questions as to the adequacy of the JMI for measuring hygiene and motivation as independent factors for students in this research.

Interview data provided limited support for the motivation-hygiene theory in terms of students' stated reasons for choosing educational programs. Choice of a technical-occupational program was closely related to previous enrollment in a high school vocational course. Between initial enrollment and registration for Spring Quarter one-third of the students had made a basic change of program. Students' stated reasons for change suggested a view of the community college as a place for exploration of educational-vocational goals. The tentative nature of student choices and students' perceptions that their general education courses were irrelevant have implications for counseling, instruction, and curriculum of the community college.

Contrary to the expectation that low ability community college students would be "hygiene-seekers" it was concluded from the data in this study that these students were responding to the idea of universal education and enrolled for the most part in educational programs with rather direct relationship to occupational goals whether these programs were labeled by the college as transfer or technical-occupational.

Order No. 71-1649, 109 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Alden, Richard, Stokholm
(Last name) (First name) (Middle name)

Exact Title EVALUATION OF ARCHITECTURAL DESIGN EDUCATION

Degree granted Ph.D., Date 1971 No. of pages in report 267

Granted by University of Pennsylvania Philadelphia, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

A two part study: Part I deals with some of the problems of adaptation and change facing the profession of architecture and its educational institutions. Historical patterns and traditions are evaluated in terms of present and future responsibilities. The conclusion was drawn that, with respect to the decisive ability to adapt to change, both of the major influencers of architectural education in the United States, the Beaux-Arts and the Bauhaus, should be found wanting. The implication being that both failed to provide explicit and systematic plans for monitoring change, evaluating alternatives and re-adapting to evolving needs.

Part II attempts to go beyond the limits of descriptive and diagnostic study. The purpose of Part II is to develop and test methods, tools and techniques for arriving at reliable assessment reports and, thereby, establish an objective basis for evaluating alternative methods of design education. The approach is empirical; i.e., founded on experiments designed to lead to improvements in: (1) design studio operations, (2) present methods of evaluation and (3) the reliability of judgemental methods used in the popular jury system.

The experiments involved two independent variables, each of which was varied in two ways: teams vs. individuals and resource pool vs. assigned critic. A third independent variable (four different architectural design problems) served as replications. A Hyper Latin Square experimental design was employed whereby forty eight architectural design students were rotated through the four treatments generated by pairing the two levels of the two variables. One hundred twenty solutions to the four problems were produced over two academic quarters. Student performance, as measured by the mean rank score assigned by faculty critics, was taken as the dependent variable. Analysis of variance provided the following principal results: (1) for all four problems, teams produced better designs than individuals even though for problem three the difference was small and not statistically significant. (2) For all four problems there were no significant differences in the performance of students working under the resource pool as compared with students working under an assigned critic. This result appears to be due to inadequate operational differences between treatments. (3) A study of interaction effects, although not statistically significant for any of the four problems, suggested the interesting possibility that assignment to the resource pool tends to improve team design but is a handicap for students working as individuals. In turn, this suggests that the assignment of a single critic to a team may act to constrain its capacities, whereas the assignment of an individual student to the resource pool may overextend his more limited capacities. Statistical evidence heavily reinforces the conclusion that, so far as a superior solution to a design problem is concerned, teams consistently outperform individuals.

Data basic to these analyses also provided information about the evaluations and the evaluative methods employed. For example: (1) Kendall's coefficient of concordance indicated significant agreement among the eight faculty jurors in their assignment of ranks to student projects. (2) Agreement appeared to be greater when jurors were evaluating a simple problem from a known milieu than when evaluating one with more complex conditions and/or an unfamiliar milieu. (3) The ranks awarded to student designs by faculty members exposed to jury discussions manifested greater agreement than did the ranks assigned by faculty members not so exposed.

A somewhat more philosophical conclusion was that techniques of evaluation are themselves subject to the imperatives of change and must therefore evolve in relation to the evolving patterns of constancy and change in architecture.

Order No. 71-25,978, 267 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Anderson (Last name), Richard (First name), Bryan (Middle name)

Exact Title TECHNICAL EDUCATION FOR NATIONAL PROSPERITY: INDUSTRIAL DYNAMICS APPLIES TO THE CLARIFICATION OF AN EDUCATIONAL CONTROVERSY.

Degree granted Ed.D., Date 1970 No. of pages in report 263

Granted by Harvard University (Name of institution) Cambridge, Massachusetts (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

National educational policies in many developing countries are being influenced by conflicting and ill-formulated theories of the economic consequences of expanding technical education. Academicians argue over these theories but have scarcely formulated them any better than the politicians have done. It seems that the complexity of the economic-educational system in a developing nation gets severely in the way of rational policy-making, and a considerable controversy has therefore developed.

Accordingly, we have undertaken to investigate the claim of Industrial Dynamics to be a suitable vehicle for expressing and manipulating the logical content of complex and fuzzily-understood systems of causal hypotheses.

We have formulated an Industrial Dynamics model which represents a first approximation to a comprehensive theory of the causal relationships between technical education and prosperity in developing nations. In its present form, this theory includes both sides in the controversy as special cases.

We have manipulated the model by means of a digital computer, using the DYNAMO compiler, first in order to identify and eliminate internal inconsistencies in the model and then to study the system behavior that follows logically from the causal hypotheses that make up the model. This simulated behavior reflects realistically some of the most undesirable and controversial features of the real system's behavior. It is easy to identify within the simulation the model relationships that are responsible for the dysfunctions of interest.

Using insights gained in model simulation, we have designed a national technical education policy under which the model behaves in a more desirable fashion.

Finally, we have described in general terms the sort of interdisciplinary theory-development project that would be required in order to make this model into a practical and reliable planning tool. We note that the Industrial Dynamics approach makes it possible to incorporate in a single theory a realistically diverse set of variables and relationships: our model includes variables that are usually considered to be the province of the disciplines of education, political science, economics, psychology, and sociology. The approach thus promises to be useful as a language for interdisciplinary communication and cooperation.

Order No. 71-19,105, 263 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Arvey (Last name), Richard (First name), David (Middle name)

Exact Title AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF TWO KINDS OF EXPECTANCIES ON THE PERFORMANCE OF A LABORATORY TASK.

Degree granted Ph.D., Date 1970 No. of pages in report 111

Granted by University of Minnesota (Name of institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The effects of two kinds of expectancies, ability, and the interactions of these variables on the performance of a laboratory task were determined using undergraduate college students as subjects. The two expectancies were: 1) the beliefs that individuals have about whether the expenditure of effort will result in "effective" performance (Expectancy I), and 2) the beliefs that people have concerning whether being an "effective" performer will lead to valued rewards (Expectancy II).

Ability proved to be the variable that was most predictive of performance. However, Expectancy I showed an almost significant relationship ($p < .06$) to performance, as did the interaction of the two expectancies ($p < .14$). It was also demonstrated that individuals who value a reward perform at higher levels than individuals who do not value the reward as much.

Goal setting was shown to be almost significantly related to performance ($p < .14$). Contrary to one theory, Expectancy I was not inversely related to performance for subjects who had set goals. Order No. 71-8119, 111 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Atkins (Last name), Michael (First name), Barton (Middle name)

Exact Title THE DEVELOPMENT AND EVALUATION OF A CASE STUDY APPROACH TO DESIGN INSTRUCTION IN ENGINEERING DESIGN GRAPHICS.

Degree granted Ed.D., Date 1971 No. of pages in report 168

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Research. The investigation sought to determine if the case materials were an acceptable method of design instruction through the stated opinions of students and instructional staff. The research also sought to determine the level of understanding of the major objectives of the presentations by the students. The study was conducted in the Department of Engineering Design Graphics at Texas A&M University during the fall semester, 1970. The research population consisted of 889 students enrolled in the first course of engineering graphics and twelve cooperating instructors who presented the instructional materials.

Procedure of the Research. The instructional materials consisted of seven design units that were presented over a ten week span of the semester to guide the students through their team design activities. Photographic slides were used as the visual medium to present the case examples that were used to relate to the students the characteristics of approaches to problem solution that have been used in the arrival at conclusions in technical design projects.

A survey method was used to obtain data from which an evaluation of the hypotheses could be performed. A questionnaire-quiz was developed to accompany each of the unit presentations except unit number one which was to serve as an introduction to design. Each instrument consisted of attitude statements to which the students responded by indicating their opinions through the use of a five-point progressive rating scale. The response possibilities ranged from a low of one, indicating complete disagreement with the statement, to a high of five which indicated total agreement with the statement. A response of three on the scale indicated neutrality. These instruments also included a multiple-choice informational quiz. These instruments were administered to the students at the conclusion of the instructional presentations to determine an immediate response from the student population concerning their attitudes about the unit materials and their understanding of the unit information. The results from these student responses were summarized in the form of means and standard deviations to determine the representative ratings on the questionnaire items and the dispersion about these mean responses.

A follow-up questionnaire was developed to determine the opinions of the cooperating staff members. A five-point rating scale was also utilized in this instrument to determine the opinion level of the respondents. The data from these instruments were summarized by mean responses to ascertain the overall opinion of the instructors concerning the case illustrated method of instruction.

Conclusions of the Research. The major research hypothesis in this investigation was that the students could be introduced to design process concepts effectively through the use of design case illustrations. This major hypothesis was evaluated through the acceptance or rejection of four hypotheses. The following conclusions and observations were made based upon the data and information received throughout the conduct of the study:

1. Each of the design units received an overall high mean attitude response of above four on the five-point rating scale. Out of the 19,264 total student attitude responses recorded on the survey items, 86.4 percent of the statements were positive while only 8.1 percent were neutral and 5.5 percent were negative. The first hypothesis—each of the individual units had a positive effect on the students' attitudes concerning the respective steps of the design process—was accepted.

2. All of the mean ratings were well above the four rating in each of the unit evaluations which indicated a very positive attitude about the use of graphical methods in design. The second hypothesis—the students will appreciate the use of graphics in each phase of the design process—was accepted.

3. The averages from the quizzes that were administered with each unit questionnaire ranged from a low of 77.0 percent to a high of 93.5 percent with an overall average of 83.6 percent throughout the units. The third hypothesis—the students will demonstrate an understanding of the major objectives presented in the units—was accepted.

4. The fourth hypothesis—instructors involved in the presentation of the materials will express a positive attitude concerning the use of the design units within an instructional situation—was accepted because all of the items on the staff questionnaire received a high rating of above four except one.

The research hypothesis was accepted due to the acceptance of all four hypotheses. Five recommendations were made based on the experience in this investigation.

Order No. 71-24,718, 168 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Aucker, John, Robert
(Last name) (First name) (Middle name)

Exact Title THE PREDICTION OF SUCCESS IN VOCATIONAL EDUCATION FROM STUDENT CHARACTERISTICS

Degree granted Ed.D., Date 1970 No. of pages in report 97

Granted by University of Northern Colorado Greeley, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to describe and examine some characteristics of students enrolled in an area vocational school in an attempt to identify information to use in selecting students for area vocational programs. The objective was to gain insight and perspective into characteristics of high school vocational students. The emphasis was upon providing information to assist the high school counselor in making recommendations and planning programs with vocational students.

The research was limited to data obtained from student records, counselors and teachers concerning a senior class of students enrolled in courses at Boulder Valley Area Vocational Technical Center (BVAVTC) during the 1968-69 school year. The base group included 218 senior (12th grade) students from six Boulder Valley School District (RE 2) high schools and three Saint Vrain Valley School District (RE-1J) high schools. Descriptive data were gathered regarding these students for all of the variables studied.

Twenty-four predictors of success and four criteria of success were used in this study. Predictors of success were defined as variables which were known prior to student participation in the vocational program. General Aptitude Test Battery (GATB) results, Iowa Test of Educational Development (ITED) results, three counselor's ratings from the student's home high school, a binary rating of the enrollment total of the student's home high school and a three-point similarity rating between a student's vocational program major (VPM) and his father's occupation were used as predictors of success. Criteria of success were defined as variables which were based upon student participation in the vocational program. The student's vocational grade point average and ratings by his vocational teacher on the same three traits rated by his counselor were the criteria of success.

Analyses of the data collected included: computation of group means and standard deviations on all variables; computation of correlations between each predictor of success and each of the criteria of success; and comparisons of each of the significant correlations between the predictors of success and the criteria of success for the base group and for each of the four largest VPMs.

Throughout the presentation, evaluation and discussion of data, efforts were made to identify characteristics of successful vocational students. This was only possible to a limited extent. However, four general conclusions appeared to be supported by the findings of this study.

First, high school vocational students appeared to be average students in terms of their performance on the GATB and the ITED. They also received average grades and ratings by their vocational teachers and by their counselors.

Second, a counselor's rating of a student's traits was the most consistently significant predictor of success when correlations were made between predictors of success and criteria of success.

Third, the traditional academic achievement measured by the ITED was significantly correlated with success in vocational education, as "success" was defined by the criteria of success.

Fourth, a counselor should use both general and specific estimates of a student's potential when evaluating him for selection for a high school vocational program. The counselor's rating of student traits constitutes the general, clinical estimate of the student. The student's performance on certain tests may provide evaluative data in specific situations regarding the choice of a vocational program.

More research should be done in identifying characteristics of vocational students. Future studies might add more variables and apply multiple regression analysis to learn more about the prediction of success in vocational education.

Order No. 71-4150, 97 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Auer, Herbert, John
(Last name) (First name) (Middle name)

Exact Title A COMPARISON OF STUDENT-DESIGNED-CIRCUIT AND PREDESIGNED-CIRCUIT ANALYSIS METHODS FOR COLLEGE STUDENTS' ELECTRICITY LABORATORY EXPERIENCE.

Degree granted Ed.D., Date 1971 No. of pages in report 308

Granted by Arizona State University Tempe, Arizona
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This research was undertaken to measure the relative effectiveness of two approaches to students' laboratory experience in a college-level electricity course. The control group's treatment consisted of laboratory analysis of predesigned circuits of a published laboratory manual. The experimental group's treatment involved the same circuit topics but the circuits were student-designed toward meeting instructor-given specifications before laboratory analysis.

The hypotheses investigated were:

- I. There is no significant difference between groups in immediate post-treatment achievement in (A) comprehension of composite subject matter; (B) electrical problem-solving ability; and (C) recognition of concepts and principles.
- II. There is no significant difference between groups in retention of (A) composite subject matter; (B) electrical problem-solving ability; and (C) concepts and principles.
- III. There is no significant difference between groups in attitudes toward the course in general.
- IV. There is no significant difference between groups in attitudes regarding the extent to which the laboratory methods (A) affect the value of the course; (B) affect students' understanding of the electrical theory presented in lectures; (C) represent a realistic approach to learning electrical problem-solving; (D) affect students' enthusiasm for further study in electricity-electronics; and (E) affect students' understanding of procedures for electrical circuit design and assembly.

The study included seventy students and was conducted in three colleges. The two laboratory sections at each institution were randomly assigned to control and experimental methods.

The quantitative and verbal scores of *The Henmon-Nelson Tests of Mental Ability*, Form A, Grades 13-17, and the scores of an electricity pretest served as covariate measures in the analysis of covariance technique of testing the significance of group difference in subject-matter criterion tests. Data for group comparisons in subject matter came from a total, a quantitative, and a recognition score on a post test and a retention test.

Group comparisons in attitudes were made using the t-test for independent samples. Data for group attitude comparisons came from a standardized course attitude scale and from five laboratory-experience attitude scales developed by the researcher.

The experimental-group treatment materials were evaluated for content validity by a panel of experienced electricity-electronics teachers prior to use in the study. The electricity pretest and the subject-matter criterion tests were evaluated for content validity by the same panel and were refined through statistical item analysis prior to use in the study.

The statistical analysis of data collected during the study provided insufficient evidence for rejecting, at the .05 level, any of the hypotheses being tested. However, for the students involved in the study, the following conclusions were warranted:

1. The adjusted mean scores of the experimental group were consistently, though insignificantly, higher than those of the control group on all subject-matter criterion tests.
2. Most students exhibited a favorable attitude toward the course and toward their laboratory experience, as reflected by the groups' mean scores on the attitude scales.
3. Though the difference in group mean scores was insignificant on all six attitude scales, the experimental group's mean score was the higher on all but one of the scales.

The results of this study and other research reported in the review of literature indicate only small differences in the relative effectiveness of various approaches to students' electricity laboratory experience. As a result of this research, the following further-research investigations in laboratory experience in electricity-electronics education are recommended. Investigate an approach similar to this study (1) without specific circuit design specifications, to provide students greater flexibility in design requirements, (2) in differently-oriented institutions, (3) in elective, rather than required, electronic technology courses, and (4) in an entire course, rather than just one unit of study.

Order No. 71-22,407, 308 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Baker, George, Lewis
(Last name) (First name) (Middle name)

Exact Title AN INVESTIGATION OF OFFERINGS OF INDUSTRIAL ARTS TEACHER EDUCATION INSTITUTIONS IN THE AREAS OF AUTOMATION AND CYBERNETICS AS COMPARED WITH CURRENT PRACTICES IN INDUSTRY

Degree granted Ed.D., Date 1970 No. of pages in report 142

Granted by University of Northern Colorado Greeley, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of the study was to investigate the offerings in automation and cybernetics at industrial arts teacher education institutions, and to compare these offerings with current practices in industry. Answers were sought to the following questions:

1. What were existing offerings of the college; requirements of the program; types of electives available; plans for curriculum revision and offerings to non-industrial arts majors?
2. What facilities were available at the institution, facilities assigned to the department, to the college-at-large and through cooperative efforts with local industry?
3. What teaching personnel were available to offer courses in these areas?
4. What were the effects of the size of the school, size of department and existence of technical or similar programs on offerings or planned offerings?
5. What processes and methods were most effected in manufacturing industries?
6. What were the relative values of automation and cybernetic techniques and equipment being used by manufacturing industries?
7. What trends and concepts may be expected to affect manufacturing industries?
8. What socio-economic effects have taken place or may take place due to automation and cybernetics?
9. What concepts were deemed necessary to understand automation and cybernetics?

Method of Study

Data for the study were obtained through the use of two questionnaires, one sent to ninety-one industrial arts educators, and one sent to fifty-seven selected industries. Data from the returned questionnaires were tabulated and analyzed to derive the findings of this study.

Findings

Despite the nearly unanimous acceptance of automation and cybernetics as a necessary part of industrial arts education by industry and industrial educators, courses in these areas were limited and often not even offered.

Varying amounts of equipment and facilities existed at many institutions, and were normally utilized for business purposes, rather than industrial application. Few educators indicated availability of such equipment through business or industry.

Sufficient qualified teaching personnel were not available. Less than half of the institutions reported personnel with formal education or industrial experiences in these areas. Few instances were found where industry was utilized to upgrade personnel.

Offerings in these areas were more likely to occur or to be planned when the number of instructors, graduate and undergraduate industrial arts enrollment were at certain levels, and when a technical or similar program existed.

Automation and cybernetics have affected industry in varying degrees, but the comprehensiveness of the change was more significant. Few areas of industry have been unaffected.

Trends expected to influence manufacturing industries were the use of time-sharing facilities, central processers and variable program controls.

Conclusions

In view of the findings of this study, the following conclusions were drawn:

1. Many industrial arts teacher education institutions are preparing teachers in programs that are not representative of current industrial practices.
2. Some equipment used for business and business education purposes could be utilized to provide experiences for industrial arts students.
3. There is a lack of qualified personnel to provide offerings in automation and cybernetics and this lack of personnel and the absence of avenues to upgrade personnel will limit the number of offerings and the speed and efficiency of their development.
4. Offerings are affected by the program enrollment, the number of instructors and the existence of technical or similar programs.
5. The comprehensive effects of automation and cybernetics upon manufacturing industries point to the need to understand these subjects, as well as the changes to many areas and concepts that affect many current areas and classifications of industry as specified by contemporary industrial arts programs.
6. The relative usefulness of equipment and systems rated by industrial personnel provides partial criteria for:
    a) selection of informational content pertaining to current systems and equipment utilized by manufacturing industries.
    b) selection and justification of equipment for educational purposes.
7. The use of variable program controls, central processers and time-sharing facilities will take much of the production and machine control out of the factory and place it at remote locations.
8. Increased specialization and greater educational attainment will require industrial personnel to be made aware of the structure, organization, needs and requirements of the industrial complex, in order to facilitate optimum development of each individual's talents and energies.
9. Topics and concepts derived from the study should be used as a basis for the course developer to begin tailoring content to achieve specific terminal objectives.

Problems for Further Study

1. A study should be conducted to develop and identify effective and efficient methods of providing educational experiences in the areas of automation and cybernetics as they apply to the function of industrial arts education.
2. A study should be conducted to determine criteria for the organization of industrial arts education programs so as to facilitate optimum levels of achievement of educational objectives and should consider the effects of size of enrollment, existence of technical programs and existence of junior college programs.

Order No. 71-4151, 142 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Ball, John, Edwin
(Last name) (First name) (Middle name)

Exact Title A STUDY TO DETERMINE THE EFFECT OF INDUSTRIAL ARTS EXPERIENCE ON THE ATTITUDE CHANGES OF UNIVERSITY FRESHMEN.

Degree granted Ed.D., Date 1971 No. of pages in report 119

Granted by North Texas State University Denton, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The problem of this study was to determine the effect of industrial arts experiences on changing the attitudes of North Texas State University freshmen toward industrial arts generally and toward specific curriculum areas in industrial arts.

The purposes of this study were threefold: The first was to determine the effect of the industrial arts curriculum on the attitudes of university freshmen toward industrial arts and specific curriculum areas in industrial arts. The second was to determine the degree of attitude difference between industrial arts majors and non-industrial arts majors. The third was to determine if an attitude difference exists in students who were enrolled in industrial arts in high school as opposed to those who received no instruction in industrial arts in the secondary school.

For the purpose of this study the content was arranged into five chapters. The first chapter included an introduction, statement of the problem, purpose of the study, hypotheses, background and significance of the study, definition of terms, basic assumptions, and limitations. The second chapter was a review of the literature while Chapter III was concerned with methods and procedures, description of the sample, the instrument, procedures for collecting data, and procedures for analysis of the data. The fourth chapter contained an analysis of the data with the statistical treatment presented in tabular form and Chapter V was a summary of the study and presents the findings, conclusions, and recommendations.

The study involved 118 freshman students who graduated from a secondary school in the spring of 1970; entered classes at North Texas State University in the fall of 1970; were enrolled in graphic arts, engineering drawing, woodworking, power mechanics, and metalworking; and were not previously enrolled in a college or university.

The technique employed in generating data was a "Semantic Differential." The "Semantic Differential" is a rating scale which utilizes a concept measured by several criteria. The criterion is a pair of polar adjectives located at the end of a continuum that is separated in seven equal parts. There are no standard concepts or criterion scales but for the purpose of this study the concepts are industrial arts, woodworking, metalworking, engineering drawing, graphics, and power mechanics.

The statistical treatment used in testing the hypotheses was the *t* test of difference between means and the .05 level was the level of significance upon which the hypothesis was accepted or rejected.

As a result of this study it was concluded that exposure to the curriculum areas of woodworking, engineering drawing, graphic arts, power mechanics, does not necessarily induce an attitude change toward these particular curriculum areas. It was concluded that sex, major field of concentration, and enrollment in a secondary industrial arts program has little effect upon the attitude change toward the concept industrial arts. It was also concluded, however, that exposure to a metalworking course did produce a change in attitude toward the concept of metalworking.

Based upon the findings and conclusions of this study it was recommended that an investigation be made of the specific curriculum areas of industrial arts. It was also recommended that there be special classes for those students in specific curriculum areas who are females and for those students who had no secondary industrial arts.

Order No. 71-25,356, 119 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Barrows, Frank, B.
(Last name) (First name) (Middle name)

Exact Title A STUDY OF VOCATIONAL EDUCATION IN A COMPREHENSIVE HIGH SCHOOL WITH RECOMMENDATIONS FOR VOCATIONAL EDUCATION AND EDUCATIONAL SPECIFICATIONS FOR INDUSTRIAL EDUCATION AT EAST HGIH SCHOOL, SALT LAKE CITY, UTAH.

Degree granted Ed.D., Date 1970 No. of pages in report 199

Granted by Utah State University Logan, Utah
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study resulted from the selection of East High School in Salt Lake City to participate in a State Sponsored "comprehensive high school" project entitled "Project Success." The primary emphasis of the project was to encourage the development of vocational education as part of the high school curriculum.

The purpose of this study was to assist the Salt Lake City School District and East High School in the planning of vocational education programs and facilities by providing a rationale for vocational education within a comprehensive high school, making specific recommendations for vocational education programs, and by writing educational specifications for the programs recommended for Industrial Education.

Data were gathered through a review of the literature, an opinionnaire mailed to graduates of East High School, a survey of local employers, and conferences with District planners and East High School personnel.

The recommendations resulting from this study were presented in the form of nine mandates for a comprehensive high school, followed by fourteen criteria for the vocational education programs at East High School.

A major recommendation was that East High School establish a Center for Bifocal Vocational Education, having vocational education programs that give as much emphasis on developing the personal traits and attitudes of the students as they do on developing specific job skills. The phrase "bifocal vocational education" was coined to stress this dual focus or dual emphasis. A Department of Personal Development was suggested that would be primarily concerned with developing the employability traits and attitudes that are deamed as important as the specific job skills.

Specific occupational clusters were suggested as a basis for the recommended vocational education. These are: Industrial Occupations, Business Occupations, and Home and Service Occupations.

A further recommendation was for expansion of the vocational education to include the entire Salt Lake City area through cooperative work experience and work-study programs.

Educational specifications for the recommended industrial education programs were written and presented to the district for use as guide to planning additional facilities.

Order No. 70-27,001, 199 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Biekert (Last name), Russell (First name), George (Middle name)

Exact Title AN EXPERIMENTAL COMPARISON OF TWO METHODS OF TEACHING NUMERICAL CONTROL MANUAL PROGRAMMING CONCEPTS; VISUAL MEDIA VERSUS HANDS-ON EQUIPMENT.

Degree granted Ed.D., Date 1971 No. of pages in report 201

Granted by Arizona State University (Name of institution) Tempe, Arizona (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

It was the purpose of this investigation to compare two methods of teaching numerical control manual programming concepts; (1) a hands-on equipment approach utilizing existing numerically controlled equipment, and (2) a visual media approach without the utilization of existing equipment. The research questions attempted to be answered were:

1. Do differences in numerical control achievement exist between the two treatment groups as a result of teaching method?
2. Do differences in numerical control programming performance exist between the two treatment groups as a result of teaching method?
3. Do differences in interest for numerical control exist between the two treatment groups as a result of teaching method?

The research population consisted of industrial technical education students attending Arizona State University during the academic year of 1970-71. The sample consisted of 47 industrial technical education students enrolled in two sections of General Metals (IT 160) during the fall semester of 1970.

The treatments were conducted over a period of six weeks with 20 hours of instructional time. Both groups were exposed to the same content material presented during nearly identical time schedules of instruction.

The criterion instrument used for the collection of data consisted of three separate parts. Part one was the achievement test which consisted of 65 multiple choice questions. Pre and posttest scores were collected. Part two was the performance test consisting of one programming problem. Only posttest scores were collected from this instrument. Part three consisted of a two question interest inventory. Pre and posttest data were collected. The entire instrument was checked for validity, reliability and item analysis prior to its use in this investigation.

Hypotheses one and two of the investigation were checked for significance with the use of the "t" test. Hypothesis three was analyzed for significance with the Chi Square statistic. The .05 level of significance was used as the rejection level for all three null hypotheses.

The analysis of data collected by the criterion instrument revealed that there was no significant difference in achievement, performance, and interest between the two treatment groups. Therefore, all three null hypotheses were accepted.

Based on the analysis of data, the researcher formulated the following conclusions from this investigation:

1. College students enrolled in a general metals course achieve information about numerical control equally effectively from either a visual media method or a hands-on equipment method for a 20 hour instructional unit.
2. College students enrolled in a general metals course have relatively equal success at programming point-to-point numerical control problems from either a visual media or a hands-on method for a 20 hour instructional unit.
3. Based on the analysis of posttest data, college students enrolled in a general metals course generate a relatively equal interest for numerical control from either a visual media or hands-on method for a 20 hour instructional unit.
4. Both the hands-on and the visual media methods of instruction had a positive generation of interest for numerical control as a result of the 20 hours of instruction.
5. Based on a comparison of pre and posttest data, the visual media method of instruction generated the greatest gain in interest on both questions of the interest inventory.

Several implications for instruction in numerical control and recommendations for further research were cited by the researcher. One major recommendation was that a longer research study should be conducted to find the point of instruction where the machine tool hands-on experiences become an absolute necessity for advancement in learning in numerical control.

Order No. 71-22,408, 201 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Bishop (Last name), James (First name), Richard (Middle name)

Exact Title AN ANALYSIS OF SELECTED ADMINISTRATIVE POSITIONS IN THE VOCATIONAL DIVISION OF THE ALABAMA STATE DEPARTMENT OF EDUCATION.

Degree granted Ed.D., Date 1970 No. of pages in report 107

Granted by University of Alabama (Name of institution) University, Alabama (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of Study:

This study evolved from the enactment of the Vocational Education Amendments of 1968 and the resulting administrative reorganization of the Vocational Division of the Alabama State Department of Education. The primary objective was to provide explicit position analysis for four major administrative positions: Coordinator of Vocational Program Planning, Development, Evaluation, and Building Construction; Coordinator of Vocational Program Services; Coordinator of Vocational Instruction for Out-of-School Youths and Adults; and Coordinator of Vocational Instructional Services Secondary Educational Program. These positions were related vertically and horizontally within the organizational structure of the Vocational Division. The administrative functioning of the division of Vocational Education was described. Relationships with agencies external to the organization were detailed.

Order No. 71-9059, 107 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Bjornerud (Last name), James (First name), Allen (Middle name)

Exact Title AN EMPIRICAL ANALYSIS OF THE INSTRUCTIONAL CONTINGENCIES IN THE DEVELOPMENT OF A SELF-INSTRUCTIONAL PROGRAM ON WOOD STRUCTURE.

Degree granted Ph.D., Date 1970 No. of pages in report 222

Granted by University of Minnesota (Name of institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

PURPOSE: The purpose of this investigation was to analyze the contingencies of instruction which influence the effectiveness of a self-instructional program and to determine procedures for making programs of instruction most effective. The specific objectives of the study were:

1. To find effective methods of determining appropriate subject matter content for a self-instructional program;
2. To determine accurate procedures for locating and improving weak and ineffective portions of a self-instructional program;
3. To develop accurate methods of evaluating the effects of a self-instructional program;
4. To determine the effects of manipulating presentation and response variables in the development of a self-instructional program;
5. To develop a self-instructional program that has been verified as to its effectiveness.
6. To provide other educators with guidelines for writing and/or evaluating programs of instruction.

METHOD OF RESEARCH: The study was developmental in nature in that methods and procedures for developing a self-instructional program were investigated and reported from the initial content determination to the final verification of the program's effectiveness. Criterion-referenced techniques were utilized to develop a maximumly effective self-instructional program on microscopic wood structure.

Each of three major versions of the program tested utilized individuals, small groups, and large groups of students enrolled in wood processing and wood technology courses offered by the Wood Technics Department at Stout State University, Menomonie, Wisconsin.

RESULTS: The results indicated that a highly effective self-instructional program can be developed by utilizing the methods of content development and analysis procedures used in this investigation.

The generation of criterion items for determination of content for programs of instruction was successfully utilized. The development of prerequisite, intermediate, and terminal criterion items delineated specifically what the content of the self-instructional program on microscopic wood structure should be.

The matrix analysis techniques used for determining strengths and weaknesses in the instructional program were effective when analyzing the students' responses in the program booklet as well as their responses on the criterion test.

The evaluation of the effectiveness of the self-instructional program was simplified by the use of the criterion item development which determined the content of the criterion test and by the utilization of the matrix analysis which located precisely which items were giving difficulty. The effectiveness on each item in the criterion test as well as the total effectiveness of the program was determined by the percentage of correct choices made by the student.

Inconclusive evidence was obtained on the effect of varying the response modes. The results suggested, however, that a reading response mode may be better in self-instructional programs which are not adequate in eliciting correct student constructed responses, but that a writing response is superior when used with programs which adequately elicit correct responses from the student.

A program was developed which was verified as to its effectiveness. The methods used in this study should be able to be effectively used by persons writing programs on instruction in various content areas.

Order No. 71-18,685, 222 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Blankenbaker, Edwin, Keith
(Last name) (First name) (Middle name)

Exact Title COMPARATIVE EFFECTIVENESS OF VARIATIONS IN THE DEMONSTRATION METHOD OF TEACHING A COMPLEX MANIPULATIVE SEQUENCE.

Degree granted Ed.D., Date 1970 No. of pages in report 124

Granted by University of Missouri Columbia, Missouri
(Name of institution) (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

PURPOSE: This study was conducted in an effort to ascertain the relative effectiveness and efficiency of selected approaches to the demonstration of complex manipulative sequences. The study also sought to test the theory that students of high intelligence will learn manipulative sequences more rapidly than students of low intelligence.

METHOD OF RESEARCH: A demonstration of vacuum forming was developed and recorded on super 8mm sound-color film. One duplicate of the film was used as treatment-A (preview-undivided demonstration). Treatment-B (logical-element demonstration) was produced by removing the preview sequence and subdividing a second duplicate at the end of each element. Treatment-C (preview-logical-element) was identical to the original except that it was subdivided into elements when it was presented to the students.

The population for the study consisted of one hundred and twenty-five seventh and eighth grade boys who were enrolled in their first course in industrial arts at Jefferson Junior High School, Columbia, Missouri during the second semester of the 1969-1970 school year.

Two students viewed the demonstration in a projection booth during each class period and were permitted to practice the manipulative sequence in accordance with the procedures dictated by the treatment to which they had been assigned. After completing the practice, each student was asked to complete the Shop and Laboratory Attitude Inventory. At the beginning of the next class period, the cognitive test was administered. Following the test, each student attempted to perform two manipulative sequences which were very similar to the one originally demonstrated. The students were timed as they attempted to perform the manipulative sequences, and the products of the attempts were rated. Four weeks after administering the original treatment, a retention test of cognitive understanding was administered.

CONCLUSIONS: Since the times required to complete the initial performance of the manipulative sequence by students receiving treatment-C were significantly less than for the groups of students receiving either of the other treatments and because the group of students who received treatment-C produced significantly more correctly formed products as a result of the first attempt to perform the manipulative sequence than the groups of students receiving either of the other two treatments, it may be concluded that the preview-logical element demonstration procedures will be more efficient with regard to student time, material utilization, and machine utilization in learning complex manipulative sequences than the other demonstration procedures studied.

Because the analysis of the scores from the measure of attitude, the cognitive test, and the measure of retention of cognitive understanding failed to reveal any significant differences among treatment groups, it was concluded that the attitude, the cognitive understanding and the retention of this understanding will be essentially the same when either of the three demonstration procedures are used.

Since students of low intelligence who received treatment-C produced a significantly greater proportion of satisfactorily formed products during the first attempt to perform a similar manipulative sequence than high intelligence students who received treatment-C, and because students of low intelligence who received treatment-C produced more satisfactorily formed products during the other two attempts of the complex manipulative sequence, it may be concluded that the preview-logical-element demonstration procedures will be more efficient in terms of material and machine utilization with low intelligence students than with high intelligence students.

Because intelligence as measured by the Lorge-Thorndike Intelligence Test failed to predict success in learning the complex manipulative sequence, it was concluded that the grouping of students based on intelligence will not improve the students' chances of learning complex manipulative sequences.

Order No. 71-8287, 124 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Blanton (Last name), Lloyd (First name), Houston (Middle name)

Exact Title COMMUNICATION NETWORKS AND INNOVATIVE POTENTIAL OF A STATE DIVISION OF VOCATIONAL EDUCATION.

Degree granted Ph.D., Date 1970 No. of pages in report 182

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purposes of the study were (1) to describe the degree of association between selected communication network characteristics and attitudes of personnel in a state division of vocational education, and (2) to assess the rigidity of openness-to-change and dynamic-tractive supervisory attitudes of those personnel.

Data were secured from the professional staff of a state division of vocational education through the use of mail questionnaires and interview schedules. A time and event sample of communication activity was conducted over a four-week period during which 97 per cent of the personnel participated. The time and event samples were sequenced through the use of the *Latin Square* research design. The designs used to assess the rigidity of attitudes included the one group pretest-posttest design and the posttest only control group experimental research design. Internal-validity threats were controlled largely through research design and random assignment of respondents to experimental and test groups.

Instruments used for the study included (1) a communication log, (2) an openness-to-change questionnaire, (3) a dynamic-tractive attitude questionnaire, and (4) an awareness-to-literature interview schedule. A sophisticated computer program capable of reducing sociometric data to interval-level indices was used to describe communication patterns and networks. Both parametric and non-parametric statistics were used for analysis of data.

Eight research and accompanying null hypotheses were analyzed. Of the eight null hypotheses, three were rejected on the basis of statistical tests conducted at the .05 level of significance. For the research hypotheses which were not supported by statistical analyses, the data distributions pointed in the direction of the research hypotheses.

Findings of the study led to the following conclusions: (1) attitudes conducive to innovative potential may be changed by selected stimuli; (2) inter-subsystem communication within the state division boundaries was virtually non-existent; (3) professional literature saw limited use by state division personnel; (4) limited contact was observed between the state division personnel and personnel of other institutions at either the state, regional, or national levels; (5) personnel at the lower organizational levels of the state division were less aware of the objectives of recent federal vocational education legislation; (6) personnel attitudes were conducive to innovative potential; and (7) attitudes toward change were more positive for personnel at the higher structural positions of the state division of vocational education.

The study may be characterized as a descriptive investigation of a reorganized state division of vocational education's interpersonal communication, in a context of innovative potential, with particular emphasis upon individual behavior as assessed in the one group pretest-posttest design and the posttest only control group experimental research design.

Order No. 71-7401, 182 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Bockman (Last name), David (First name), Carl (Middle name)

Exact Title THE EFFECTIVENESS OF PROGRAMED INSTRUCTION VERSUS THE LECTURE-DISCUSSION METHOD OF TEACHING BASIC METALLURGICAL CONCEPTS.

Degree granted Ed.D., Date 1971 No. of pages in report 256

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Statement of the Problem

The purpose of this study was to compare the effectiveness of two methods of teaching a unit of instruction on the basic concepts of metallurgy. The two teaching methods used were the conventional lecture-discussion method and an illustrated programed textbook method. The control group used a portion of a conventional textbook accompanied by lecture, chalkboard illustration, and class discussion. The experimental group received their instruction solely from four illustrated programed textbooks.

Collection of Data

The data for this study were obtained from 124 college students enrolled in lower division metals classes in the Industrial Arts and Technology Department at Fresno State College, Fresno, California, during the Spring semester of 1970. Homogeneity of the classes used was determined by a standardized criterion test. The classes were then divided into two groups by arbitrarily assigning a method of instruction to each class. The decision to accept or reject the null hypothesis of no significant differences was based on group scores from pre-test, post-test, and retention tests.

Procedures

1. A pilot study and a panel of experts were used to validate the test instruments and the programed textbooks used in this study.
2. An analysis of variance of the standardized test scores was made to identify any group differences prior to the experiment.
3. An analysis of covariance was used to identify any differences among the groups in the amount of metallurgy knowledge they had at the beginning of the experiment. The data from the standardized test and pre-test were used for this analysis.
4. An analysis of covariance was used at the end of the unit of instruction to identify any differences in achievement among the groups in their knowledge of metallurgy as indicated by the differences between the pre-test and post-test scores.
5. An analysis of covariance was used to identify any differences among the groups in their knowledge of metallurgy five weeks after the conclusion of the experiment. The data from the pre-test and retention test were used for this analysis.
6. The F test was used to determine the significance of the analysis of variance and the significance of covariance at the 5 per cent and the 10 per cent levels.

Results of the Study

1. There were no significant differences among the scores of the students in the experimental and control groups on the standardized criterion test at either the 5 per cent or 10 per cent levels.
2. There were significant differences among the scores of the students in the analysis of covariance of the pre-test scores at both the 5 per cent and 10 per cent levels.
3. There were significant differences among the scores of the students in the analysis of covariance of the pre-test and post-test scores at both the 5 per cent and 10 per cent levels.
4. There were no significant differences among the scores of the students in the analysis of covariance of the post-test and retention test scores at both the 5 per cent and 10 per cent levels.

Findings of the Study

The null hypothesis that there were no significant differences between the two teaching methods was not accepted on the basis of the analysis of the pre-test and post-test scores. The differences between the groups, however, became negligent five weeks after the conclusion of the experiment.

Conclusions

On the basis of the above stated findings and on the basis of other research cited in this study, the following conclusions were asserted:

1. Programed instruction is as effective as conventional teaching techniques and schools should make the fullest possible use of programed instruction.
2. Programed instruction can provide educators with a solution to the problem of teaching a class with widely varying ability levels. With programed material, students are permitted to progress at their own rate.
3. Programed instruction can reduce the overall cost of education by enabling one teacher to serve a larger number of students.

Order No. 71-26,808, 256 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Boyer (Last name), John (First name), William (Middle name)

Exact Title EVALUATION OF THE EFFECTIVENESS OF SELECTED MANPOWER TRAINING PROGRAMS.

Degree granted Ph.D., Date 1970 No. of pages in report 240

Granted by University of Minnesota (Name of institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This pilot study was a retrospective evaluation of the M.D.T.A. Institutional training program in Duluth, Minnesota, in terms of the ability of 1,373 of its trainees (1963 through 1967) to attain selected in-training and post-training success criteria, and subsequent efforts to predict such attainment from personal characteristic data. The former criterion was completion of training. The latter criterion was completion of training and subsequent job placement and employment success for each of the 3, 6 and 12 month periods immediately following training.

Such success criteria were utilized singly or in combination as criterion variables. Success criteria data indicated 60.1% completed training of which 61.4% attained post-training success, and 39.9% failed to complete training. Comparison of success criterion rates for trainees categorized by occupational classification and training course indicated: 1) Technical trainees were most successful and Sales and Clerical trainees were least successful in completing training, and attaining post-training success, and 2) Electronic Assembler, Highway Technician and Occupational Therapy Assistant trainees were most successful in completing training, but the former two also experiences greatest post-training non-success.

The predictor variables were 25 personal characteristics of each trainee. Personal characteristic profiles were developed to differentiate successful and non-successful trainees. Chi-Square analysis indicated 14 characteristics differentiate trainees completing and not completing training, and 12 characteristics differentiate trainees attaining and not attaining post-training success.

Two-Way Analysis of Variance indicated trainees differed in 16 characteristics when categorized by occupational classification and 20 when categorized by training course in which enrolled. However, trainees differed in 6 and 5 characteristics, respectively, when cross-classified by success criterion attainment within such occupational classifications and training courses.

Personal characteristic profiles were presented for trainees attaining each success criterion within 1) the Technical, Sales and Clerical, and Skilled occupational classifications, and 2) 16 training courses, including: Artificial Breeding Technician, Clerk-General Office, Clerk-Typist, Dinner Cook, Electronic Assembler, Highway Technician, Longshoreman, Machine Operator, Mechanical Drafting, Medical Laboratory Assistant, Occupational Therapy Assistant, Programmer, Salesperson-General, Stenographer, Waitress, and Welder-Combination.

The first major finding of this study was that personal characteristics which differentiate trainees who were successful and non-successful in terms of both the in-training and post-training criteria can be identified.

Correlational analysis was then utilized to determine the extent to which specific personal characteristics correlate with trainee attainment of the combined success criterion. Such data indicated, with few exceptions, such characteristics correlate to a greater extent with attainment of the combined success criterion for trainees categorized by selected training course, than for either of the less selective categorizations, i.e., by population or occupational classification. However, the extent of such correlation was low in each instance, ranging from .02 to .39.

A Reciprocal Averages Prediction Technique was then utilized to determine the extent to which a trainee's attainment of the combined success criterion could be predicted from knowledge of his personal characteristic profile for trainees categorized as above. Categorization of trainees by selected training course increased such extent to the greatest degree, however, prediction was relatively ineffective in each instance, ranging from .31 to .48.

Therefore, a second major finding was that the use of personal characteristic profiles to predict a potential trainee's attainment of selected in-training and post-training success criteria was feasible, but at a relatively modest level of prediction.

Order No. 70-27,103, 240 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Braun (Last name), Charles (First name), A. (Middle name)

Exact Title AN HISTORICAL STUDY OF THE DEVELOPMENT OF TECHNICAL EDUCATION IN BRITISH HONDURAS (BELIZE).

Degree granted Ph.D., Date 1970 No. of pages in report 162

Granted by Wayne State University (Name of institution) Detroit, Michigan (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This paper describes the organization and functioning of a technical school in one underdeveloped country—British Honduras (Belize). The geography, history and ethnic characteristics of the country are shown to contribute uniquely to Belize's present situation: Belize is located where it receives frequent buffeting from hurricanes, e.g.; the British and Spanish Conflict over control delayed internal development and led to ethnic heterogeneity as well as to multi-lingualism in the population. Discussion includes analysis of contribution of natural resources, outside grants and government planning to the present economic status of Belize. Limiting factors in the educational system are pointed out to be the British Classical model, severe shortage of trained teachers and fragmentation resulting from control of the schools by religious bodies. These factors are highlighted in view of Belize's need both for supervisory personnel and technicians, especially since the population of the country is small in proportion to its arable land. The role of Belize Technical College, particularly as a "pilot project" is analyzed, both for its strengths and weaknesses, in terms of the country's needs.

Order No. 71-386, 162 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Brown, Alpha, Otis
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT AND APPLICATION OF AUDIO-TUTORIAL MATERIALS FOR TEACHING SELECTED UNITS IN SEMICONDUCTOR ELECTRONICS.

Degree granted Ed.D., Date 1971 No. of pages in report 496

Granted by Texas A&M University College Station, Texas
(Name of institution) (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

The research problem was to design and evaluate an Audio-Tutorial and thirty-five millimeter slide instruction program to use at the college freshman level for instruction in the area of basic semiconductor electronics. The procedure followed was to study the materials and research results of other experimenters in this area and to analyze the contents of the subject to be taught.

Using the analysis of subject content the media were developed. The media in this study consisted of audio tape scripts of theory and laboratory experiment procedure, supported by thirty-five millimeter slides of the laboratory apparatus and instruments.

At the same time the pretest/posttest instrument was developed and sent to a jury of experts in the fields of electronics and media. The test items were revised and the final pretest/posttest containing 122 items was prepared.

The audio tapes and thirty-five millimeter slides were tried out on laboratory assistants and revised into the form used during the pilot study. The pilot study was conducted at Kansas State College of Pittsburg, Kansas, on a group of thirty-four students enrolled in a freshman course in basic semiconductor electronics. The subjects were randomly divided into two groups, and the two groups were randomly assigned to the treatments; the pretest was administered to all subjects. The treatments in this study consisted of two teaching techniques applied to the randomly selected groups of students. One group received instruction by the conventional lecture-laboratory technique. The second group received nearly all of their instruction from audio taped lectures and audio taped instructions for laboratory experiments with thirty-five millimeter color slides as support materials. The first group was designated the control treatment and the second group was designated the experimental treatment. At mid-term, the two groups were rotated from one treatment to the other in order to eliminate instructor bias. The experiment was continued until the end of the term and the posttest was administered.

During the course of the experiment, time records were kept by the experimental group students in the carrell. A comparison of the time spent by the carrell group and the conventional lecture-laboratory group indicated a substantial time savings in favor of the experimental carrell method.

The data from the pretest and posttest was treated statistically with a two-way analysis of variance.

The statistical treatment indicated that no significant difference at the .01 level did exist between the achievement of students in the control and experimental treatments. A significant difference at the .01 level did exist between the first and second half of the course. A significant interaction at the .01 level could be identified between the treatments and the first and second half of the course.

An examination of the means of the groups indicated that the experimental carrell treatment scored higher than the control in the first half of the course but not as high as the control in the second half.

The conclusion drawn from this experiment was that the audio-tutorial technique, while it shows no significant gain in student achievement, is as effective as the conventional technique with a saving in instructional time. This time saving yields better use of facilities, equipment, instructor time and allows the student to progress at a faster rate. Because of these findings the system is recommended for further use and experimentation.

Order No. 71-24,719, 496 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Brown (Last name), Marilyn Kay (First name), Boatright (Middle name)

Exact Title STUDENT SERVICES FOR ADULT, PART-RIME OCCUPATIONAL-TECHNICAL STUDENTS IN SELECTED VIRGINIA COMMUNITY COLLEGES

Degree granted Ed.D., Date 1970 No. of pages in report 348

Granted by University of Virgia (Name of institution) Charlottesville, Virginia (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purposes of the study were to determine: (1) characteristics of adult part-time students enrolled in occupational-technical curriculums or courses at Central Virginia, John Tyler, Southwest Virginia, and Virginia Western Community Colleges; (2) student services considered essential by these students; (3) any differences between the expressed needs of occupational and technical, male and female, younger and older, and occupationally experienced and inexperienced respondents; (4) activities related to student services considered appropriate by respondents for occupational-technical instructors to perform; and (5) guidelines for student services designed to meet the expressed needs of the group studied.

The need for the investigation was established through references to related literature in which the following, corresponding to purposes of the study, were described: characteristics of the adult part-time student, services identified as essential, services for female adult students, student services in terms of age groups and employment experience, the student services role of occupational-technical faculty, and guidelines for student services.

Method

A questionnaire, based on related literature, suggestions of Virginia community college personnel, and recommendations of a validation panel, was developed. Validation procedures included also a test administration of the questionnaire to sixty students at Northern Virginia Community College.

Analysis of the data was based on questionnaires returned from four hundred thirty-four respondents at the four selected colleges. Medians and modes were used in determining characteristics of the typical male and female. The criterion for identifying a service as essential or an activity as one to be carried out by instructors was eighty per cent or more affirmative (strongly agree and agree) responses. Differences between responses of sub-groups were determined by computing chi-squares, based on equal expected frequencies in five categories of response and on the proportion of each type of student in the group studied (independence values). Chi-squares were considered significant at the .05 level with four degrees of freedom. Results were shown in tables according to categories of student services.

Results

1. The typical male and female respondents were similar in their educational, personal, and vocational characteristics, but the female was older and had less employment experience. Most students were employed full-time and attended evening classes.
2. Fourteen out of thirty-seven services were identified as essential and were primarily those classified as pre-college information, admissions and records, counseling, and placement. Assistance and counseling during registration was the most important service for respondents.
3. There were more significant differences between the responses of occupationally experienced and inexperienced students (a total of fifteen) than between those of any other groups studied. Technical and younger respondents indicated they needed certain services more than occupational or older students. There were no major differences between the responses of males and females.
4. The student services role of instructors focused on those activities directly related to instruction and career development, for example: providing course descriptions and objectives, explaining the relationship of each course to careers in a field, and counseling during registration.

Conclusions

1. Respondents were busy, practical individuals interested in conservation of time and effort.
2. Occupationally inexperienced students required more extensive student services than experienced respondents.
3. Respondents felt that the student services role of instructors should be limited to instructional and related career development activities.
4. The lack of required courses in the evening was the most serious problem encountered by these students in their educational program.

Recommendations

Twenty-two guidelines, presented according to categories of student services and based on results of the study, were provided as recommendations for student services. Among the recommendations for further study were the following: (1) similar studies, focusing on the student services needs of adult, part-time, and/or occupational-technical students at other colleges in the Virginia Community College System or at such colleges in other states; (2) experimentation to determine methods of obtaining data from occupational-technical students that are more effective than questionnaires; and (3) further investigation of the employment experience factor in relation to the student personnel needs of adult or occupational-technical students.

Order No. 71-6625, 348 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Budke (Last name), Wesley (First name), Eugene (Middle name)

Exact Title GUIDELINES FOR THE DEVELOPMENT OF PREVOCATIONAL EDUCATION PROGRAMS AT THE JUNIOR HIGH SCHOOL LEVEL.

Degree granted Ph.D., Date 1970 No. of pages in report 257

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The major purpose of this study was to develop guidelines for use in organizing, operating and administering prevocational education programs at the junior high school level. The specific objectives of the study included the identification of important characteristics of existing prevocational education programs; the identification of unique and different approaches for initiating and conducting prevocational education programs; the synthesis of tentative guidelines which merit wide application for junior high school prevocational education; and the selection, refinement and finalization of the guidelines with the assistance of a jury of experts.

State departments of education throughout the United States were contacted to identify ongoing junior high school prevocational education programs in their respective states. From a review of literature and information received from existing prevocational education programs, thirteen major program areas were identified. A jury of experts evaluated the clarity and appropriateness of the program areas, ranked them in the order in which they should be considered when developing new programs, and indicated the relative importance of each program area. A second instrument was drafted which included suggested modifications plus a set of guiding statements for each major program area. The jury then indicated their degree of agreement with each statement using a four point agreement scale. Responses to each statement were analyzed in terms of central tendency and variability. Seventy-four of the original eighty-five guiding principles were agreed upon by the jury and appear in the final set of guidelines for prevocational education in the junior high school.

The study revealed that programs of junior high school prevocational education were relatively new and exhibited many different characteristics and forms, although several common characteristics were identified. Most programs utilized about one-sixth of the total student class time with occupational orientation, they provided information concerning all skill levels of occupations, they used something other than verbal discussions such as field trips and resource people to provide this information, and they emphasized both career orientation and exploration.

Most of the junior high school prevocational education programs appeared to be based upon the developmental theory of vocational choice and development.

Two basic approaches seemed to be used in providing junior high school prevocational education; the interdisciplinary approach and the separate course approach. The trend seemed to be toward using the interdisciplinary method.

Thirteen areas were identified as being important to the development of junior high school prevocational education programs. They were: program objectives, program design, instructional staff selection, grade level of student involvement, staff training, financing, curriculum and activities, community involvement, student selection, facilities and equipment, guidance and counseling, administration and supervision, and finally program evaluation.

Order No. 71-7407, 257 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Burkert (Last name), William (First name), George (Middle name)

Exact Title A STUDY OF THE TECHNOLOGICAL SUBJECTS INSTRUCTORS IN THE JUNIOR AND COMMUNITY COLLEGES IN THE EASTERN UNITED STATES.

Degree granted Ed.D., Date 1970 No. of pages in report 102

Granted by Indiana University (Name of institution) Bloomington, Indiana (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

PURPOSE

It was the purpose of this study to determine the characteristics and qualifications of the technological subjects instructors who were employed in the publicly supported two-year junior and community colleges that purported to offer curricula for occupational preparation at the technical level.

POPULATION

The population consisted of 242 institutions east of the Mississippi River. Correspondence with officials of the 36 randomly selected institutions yielded a participation population of 29 junior community colleges. It was found that these institutions had 390 instructors. The correspondence to the instructors was mailed one week before a scheduled personal visitation. Three hundred and fifteen subjects, or 80.9 per cent, submitted usable instruments to the investigator.

RESULTS

More than 60 per cent of the subjects were found to be male, married, between the ages of 25 and 39 years and had 2.2 children in their family. Just over half the instructors had served in the armed forces less than four years. More than four out of five subjects had at least a bachelor's degree. Almost one out of two instructors was pursuing an academic certificate, a diploma or a degree. More than 70 per cent of the instructors had from three to five years of nonmilitary practical occupational experience. Just under 60 per cent of the instructors had been employed for three years, or less, in their present positions. More than 65 per cent of the subjects had 4.6 years teaching experience prior to their present positions. The instructors spent between 13 to 22 classroom contact hours per week. They also spent 23 to 43 hours per week in teaching and teaching related activities. The subjects reported that the curricula, colleagues, personnel and location of the institution were attractions in their present positions. Almost 50 per cent of the subjects indicated that they had graduated from high school and college—and were pursuing graduate programs—in the same states in which they are located. Almost two out of three instructors heard about their present teaching position through either friends or college officials. Just over 50 per cent of the instructors said they would leave their present positions if personal friction arose with those in authority.

CONCLUSIONS

1. Since well over 60 per cent of the technological subjects instructors are between 25 and 39 years of age, the typical instructor may be considered young rather than middle-aged or old.
2. He prefers to live in the state in which he is now employed as evidenced by the fact that in one out of every two cases he was born there, went to school and grew up there, and returned there after serving in the armed forces less than four years.
3. For whatever reason, he is a believer in graduate work and is currently in the process of earning an advanced degree.
4. He may reasonably be considered an experienced teacher because he had worked in the field of education more than seven years.
5. He secured his present teaching position through personal initiative and is content with it, but would leave if personal friction arose between him and the officials of his school.
6. Not only would he be ready to leave under such circumstances, but has the mobility to do so as evidenced by the facts that:
   a. Instructors with his field of specialization have been—and are —in short supply
   b. He had an average of three other job opportunities prior to accepting his present position

Order No. 71-11,369, 102 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Buttery (Last name), William (First name), Albert (Middle name)

Exact Title A COMPARATIVE STUDY OF THE EVALUATION OF COLLEGIATE COOPERATIVE EDUCATION COORDINATOR FUNCTIONS.

Degree granted Ed.D., Date 1971 No. of pages in report 149

Granted by Arizona State University (Name of institution) Tempe, Arizona (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

I. STATEMENT OF THE PROBLEM

It was the purpose of this investigation to determine whether or not collegiate coordinators evaluated their coordinating functions the same as the corporate coordinators with whom they worked.

II. METHODS AND PROCEDURES

A data gathering instrument was constructed which incorporated: (1) a graphic rating scale which allowed the respondents to rate the fourteen functions as extremely important, important, less important, not important and not familiar with the item, and (2) a column in which the respondents were asked to rank the functions with respect to each other from one for the most important to fourteen for the least important. The data gathering instrument and the data output were subjected to: (1) review by a panel of experts for professional clarity; and (2) exposure by means of a pilot study to ten coordinators for purposes of clarification of format and verification of statistical study design.

Identical data gathering instruments were sent to a random sampling of ninety collegiate coordinators and one hundred corporate coordinators. A random sample of thirty information forms was drawn from the mailed information forms received from the selected collegiate coordinator group and thirty from those returned from the corporate group. The data gathered from the returned forms were treated statistically to ascertain if significant differences existed between evaluations assigned by coordinators within each professional group and between the two separate groups of coordinators.

III. CONCLUSIONS

1. The selected collegiate coordinator sample exhibited little agreement among themselves with respect to the evaluations of the fourteen functions. The computed Kendall's coefficient of concordance was .31.
2. Data analyzed from the mailed information forms returned by corporate coordinators indicated that the selected group was not in agreement as to the importance of the fourteen functions. The data gathered yielded a Kendall's coefficient of concordance of .32.
3. As two separate groups, the collegiate and corporate coordinators were in closer agreement with each other as indicated by the computation of a Spearman rank order correlation of .717.

Of the fourteen collegiate coordinator functions, eight were considered important by both the collegiate coordinators and corporate coordinators.

The following job description was recommended based upon the findings of the study: The duties of a coordinator are (1) to coordinate and supervise the cooperative employment of an assigned group of students; (2) to serve as the liaison official between the cooperative institution and the employers regarding administrative and operating requirements of the program; (3) to help his students secure initial satisfactory cooperative employment as well as subsequent opportunities through the placement process; (4) to conduct follow-up activities regarding all placements by regularly checking each student's job performance through company visits and individual student conferences; (5) to solicit cooperative jobs ranging from entry jobs to training programs in business, industry, government agencies, or service agencies depending upon the needs and qualifications of his students; (6) to disseminate occupational information in order to assist his students in making wise choices, plans, and adjustments relative to career planning; (7) to counsel his students regarding their educational, vocational, and personal development; (8) to vigorously promote, encourage, and recommend the advantages of the cooperative plan to the administration, faculty, students, employers, high school guidance counselors, community organizations, and the public to insure their supportive efforts, and in general, to enhance the growth of cooperative education.

Order No. 71-23,996, 149 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Buzzell (Last name), Charles (First name), Henry (Middle name)

Exact Title INCIDENCE OF GEOGRAPHIC AND OCCUPATIONAL MOBILITY AMONG CERTIFIED ELECTRONIC TECHNICIANS IN THE MIDDLE ATLANTIC STATES.

Degree granted Ed.D., Date 1970 No. of pages in report 178

Granted by Rutgers University The State University of New Jersey (Name of institution) New Brunswick, New Jersey (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The principal purpose of this study was to assess the degree to which differential mobility, geographic and occupational, was a function of the type of environment in which the certified electronic technician was trained: high school, post-high school, or on-the-job. In addition, this study also examined the degree to which certified electronic technicians differed from "other" certified technicians relative to geographic and occupational mobility.

The method employed for conducting this study was to evaluate the entire population of certified engineering technicians employed in the Middle Atlantic States Region (New Jersey, New York, and Pennsylvania). The population consisted of 1,563 technicians, of which 880 (56.3 percent) responded.

The instrument used to gather the data was a Questionnaire mailed to the subjects. The subjects were identified, for the study, by the Institute For The Certification of Engineering Technicians. This Institute is sponsored by the National Society of Professional Engineers as the examining body for determining the competencies of those engineering technicians who apply for certification.

The findings of the study were that:

1. Differential geographic mobility among certified electronic technicians was not a function of the learning environment in which they receive their training; i.e., certified electronic technicians trained in post-high school institutions did not have a higher index of geographic mobility than those certified electronic technicians who received their training in either the high school or on-the-job.
2. Differential geographic mobility among certified technicians, other than electronic, was not a function of the learning environment in which they receive their training; i.e., certified technicians, other than electronic, trained in post-high school institutions did not have a higher index of geographic mobility than those certified technicians who have received their training in either the high school or on-the-job.
3. Differential occupational mobility among certified electronic technicians was not a function of the learning environment in which they receive their training; i.e., certified electronic technicians trained in post-high school institutions did not have a higher index of occupational mobility than those certified electronic technicians who have received their training in either the high school or on-the-job.
4. Differential occupational mobility among certified technicians, other than electronic, was not a function of the learning environment in which they receive their training; i.e., certified technicians, other than electronic, trained in post-high school institutions did not have a higher index of occupational mobility than those certified technicians who have received their training in either the high school or on-the-job.

From the findings of this study 30 conclusions were drawn. These conclusions led to the formulation of the following recommendations:

1. Technical curricula must be developed to meet the training needs of the "stayers," "movers," and the "returners."
2. The striking similarity among technicians from different training environments and from different areas of specialization suggest the appropriateness of establishing a national system for the retrieval and dissemination of research findings as they relate specifically to the "technical" occupational classification.
3. Valid and reliable measures must be developed and employed for assessing the extent to which a technician's skills, developed during training, are required to change due to his mobility behavior.
4. Technicians must be provided, during their training period, the opportunity to become skillful at "transferring training."
5. Technical curricula must provide learning experiences which will enhance the development of interpersonal relationship skills.
6. Post-high school technical training must be comprehensive enough to provide for:
   - A. Incoming high school students with no previous training.
   - B. Incoming high school students with extensive high school training.
   - C. Incoming students from industry who seek to update their skills and/or work toward a professional degree.
   - D. Returning students.
   - E. Students who are forced to leave before completing formal 2-year programs.
   - F. Students seeking Associate degrees.
   - G. Students planning to transfer to 4-year institutions.

Order No. 71-19,798, 178 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Cain, John, Norman
(Last name) (First name) (Middle name)

Exact Title TEACHER CHARACTERISTICS AND BACKGROUND QUALIFICATIONS SIGNIFICANT TO MAXIMUM TEACHING EFFECTIVENESS WITH IMPLICATIONS FOR STAFFING VOCATIONAL EDUCATION CENTERS IN OAKLAND COUNTY, MICHIGAN.

Degree granted Ph.D., Date 1970 No. of pages in report 235

Granted by Michigan State University East Lansing, Michigan
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to develop a rationally and empirically based design by which to select maximum effective teachers for nine selected courses offered in shared-time area vocational centers like those in Oakland County, Michigan. The nine courses were Advertising, Child Care, Data Processing, Dental Office Assisting, Display, Distribution and Marketing, Engineering Drafting, Greenhouse and Nursery Occupations and Total Office Procedures System.

Three postulates of theory provided the framework by which to develop the selection design:

(1) Selection must take place according to criteria, which will permit evaluation of the selection procedures.

(2) Selection must take place according to sound, empirically based principles derived from the practical experience of those immediately involved in selecting teachers.

(3) Selection must take place according to defined situational factors. The criterion for evaluation of the design was placement of the student in the occupation for which he was trained.

Empirical bases for principles of selection were derived from instruments checked by seventy principals of vocational centers like those in Oakland County. The centers were situated in eleven states. Fifty-seven descriptors of teacher characteristics and background qualifications, selected from related literature, were rated on a dimensional scale of ineffective to maximum effective for each of the nine courses. The principals rated only those courses for which they selected teachers in their vocational centers. They also ranked ordinally the three most significant areas and one least significant area from the seven areas under which the descriptors were grouped—Work Experience, Formal Education, Teaching Ability, Personal Characteristics, Unmodifiable Physical Characteristics, Modifiable Physical Characteristics and Background Qualifications.

Situational factors were determined from responses to the instrument by all of the fourteen hiring personnel of Oakland County's four vocational education centers. For the greater flexibility and adaptability of the design, situational factors were behaviorally justified by relating a job function specification to each situational descriptor.

From 284 instruments, a seventy per cent return from the out-state survey, thirteen descriptors were interpreted to be common teacher characteristics and background qualifications for maximum effective teaching in all nine of the selected courses and were included in the design as principles for selection: work experience of three years or more and in the subject area taught; formal education of a Master's Degree; a teaching ability based on knowledge of the subject area taught, skill proficiency, and organizational ability; personal characteristics that reflect positive attitudes toward the subject area taught, toward teaching and toward students, cooperative attitudes toward other school personnel, enthusiasm and a strong self-concept. One of the more salient means by which to assess a teacher-candidate's potential for maximum effectiveness is his background qualifications reported in a strong work experience recommendation. The three areas of most significance by which to select maximum effective teachers for the nine selected courses were Teaching Ability, Personal Characteristics and Work Experience. The least significant area was Unmodifiable Physical Characteristics.

Eleven additional descriptors were situational to Oakland County and sixteen were situational to selecting teachers for one or more (but not all) of the nine selected courses as interpreted from the 47 instruments returned from Oakland County's hiring personnel.

The teacher characteristics and background qualifications generalizable to both survey populations (Oakland County's personnel did not value cooperative attitude toward other school personnel) and those situational to Oakland County and to each of the nine courses were compiled into a design for appropriately staffing vocational centers like those in Oakland County. To illustrate the implementation of the design situational factors for Oakland County and for each of the nine courses were behaviorally related to anticipated teacher tasks or job function specifications by paradigms.

Order No. 71-18,179, 235 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Carr (Last name), Eva Ruth (First name), Shields (Middle name)

Exact Title A STUDY OF THE BASIC ISSUES RELATING TO PHILOSOPHY, PURPOSE, AND CURRICULUM OF VOCATIONAL EDUCATION AND THEIR UTILIZATION IN THE DEVELOPMENT OF CRITERIA FOR EVALUATION OF VOCATIONAL EDUCATION PROGRAMS.

Degree granted Ed.D, Date 1970 No. of pages in report 135

Granted by Auburn University (Name of institution) / Auburn, Alabama (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of the study was two-fold. The first purpose was to identify several basic issues regarding the philosophy, purpose, and curriculum of vocational education. The second purpose was to develop statements of criteria related to the identified issues that were perceived to be valid and appropriate for use as a basis of evaluating vocational education programs in terms of philosophy, purpose, and curriculum.

Method

Six basic issues were identified through a study of related literature. Eighteen statements were identified as appropriate statements to form the basis of evaluation instruments in the evaluation of philosophy, purpose, and curriculum of vocational education. This was accomplished through the use of a Q-sort technique utilizing opinions of an accredited jury.

Conclusions and Recommendations

Based on findings which verified the belief that there is basic agreement as to what are the basic issues in vocational education and that evaluative criteria statements based on identified issues can be developed from opinions of experts, the following conclusions were drawn and recommendations made.

A. Vocational education should be as concerned with the needs of people as with the needs of the labor market.

B. The curriculum of vocational education programs should be broad in nature to prepare individuals for clusters or families of occupations.

C. Vocational education should be an integral part of a comprehensive educational program, rather than be separated from other phases of education.

Order No. 71-4003, 135 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Carr, Harold, Lee
(Last name) (First name) (Middle name)

Exact Title A PROGRAM REVIEW PARADIGM FOR OHIO VOCATIONAL EDUCATION.

Degree granted Ph.D., Date 1970 No. of pages in report 449

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This developmental project was considered to be phase one of a larger project which the investigator titled Program Review for Improvement, Development, and Expansion in Vocational Education (Project PRIDE). The project was designed for and conducted in cooperation with The Division of Vocational Education, State of Ohio Department of Education.

The overall purposes of the developmental effort were (1) to develop a conceptual program review paradigm to serve as the basic strategy or structure for the development of components of a program review system designed to periodically assess the programmatic efforts of vocational education at the local, educational planning district, and state levels in Ohio; and (2) to implement initially the program review system by developing and field testing that part of the paradigm designed to aid local education agencies in the assessment of process variables within vocational education instructional programs.

Through an analysis of evaluation requirements, theories, and designs generalizations were derived and classified with parameters imposed by the unique educational setting to formulate the conceptual paradigm.

The paradigm, critiqued at each stage of development by local, state and national vocational educators, identifies the place of public vocational education in the total manpower development system and delineates a structure of planning and decision-making in the public system. This structure includes three phases of planning and decision-making defined as Strategic Alternative Phase I, Management Alternative Phase II, and Operations Alternative Phase III.

A taxonomy of decision types within the planning and decision-making structure was defined to include strategic, allocation, structure, adjustment, transfer, and kinetic decisions.

The components of the program review system identified as necessary to serve these decisions were organization and administration review, process variable review, product review, availability and impact review, cost-analysis review, acceptance and congruence review, and *ad hoc* review.

A generalized design was prepared to guide the development of program review system components. The paradigm was then completed by providing a structure for relating the review system to the unique state operations with a scheme (1) for relating system components to vocational education programs and services and to the planning and decision-making structure, (2) for relating vocational education programs at various levels to the state program, (3) for the multi-level involvement of personnel for design and development of the system, and (4) for the flow and utilization of information.

To implement initially the program review paradigm, the process variable review component was defined and a model was prepared for the development of program review guides. A development workshop, utilizing local vocational education personnel as development consultants, was held and program review guides were prepared for each of seventy individual vocational education instructional programs in Ohio. Also included in the development were program review guides for vocational guidance and vocational education administration.

The process variable review component was field tested in twelve school districts in Ohio. Information derived from the field test activities was utilized to revise the component design, procedures, and materials before printing the materials for general distribution.

Based on critical reviews of the program review paradigm, an analysis of the process variable review component development activities, and an analysis of the field test activities it was concluded by local, state and national review groups that: (1) the paradigm represents an integration of sound concepts of educational program evaluation and provides a structure with sufficient interrelated focal points to guide the development of system components; (2) the paradigm is sufficiently inclusive to provide comparable information at various planning and decision-making levels without unnecessary duplication or segmented effort; (3) the generalized program review system component design and implementation structure is adequate to guide the development of each system component; and (4) the personnel involvement structure is effective in the design, development, and implementation of system components.

Order No. 71-17,972, 449 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Carter (Last name), John (First name), P. (Middle name)

Exact Title AN INVESTIGATION OF ATTITUDES HELD BY INDUSTRIAL ARTS EDUCATORS TOWARD THE QUESTION OF A UNIFORM NATIONWIDE CURRICULUM FOR INDUSTRIAL ARTS

Degree granted Ed.D, Date 1970 No. of pages in report 125

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The proposal that a uniform nationwide curriculum for industrial arts be developed by the profession has received substantial but not unanimous support from prominent industrial arts educators. Until now, however, there has apparently been no study made of the degree of support or opposition such a concept might encounter among the rank and file of the nation's industrial arts teachers, who, by their acceptance or rejection, would in the final analysis determine its success or failure. It was the purpose of this study to investigate the attitudes of industrial arts educators throughout the nation toward a more uniform nationwide curriculum for industrial arts.

An opinionnaire was sent to three groups of educators: 150 industrial arts department chairmen of colleges and universities offering four-year undergraduate programs in industrial arts; the state supervisor or consultant for industrial arts for each of the fifty states; and five public secondary school industrial arts teachers from each state. Respondents were asked to indicate the degree to which they agreed or disagreed with each of 22 statements by marking value responses from one ("disagree strongly") to five ("agree strongly").

Results of this study indicated general agreement among industrial arts educators that curricular reform and modernization in industrial arts are needed. The consensus was that such reform must involve all concerned parties: industrial arts teachers on all levels, state education department personnel, professional organizations, and representatives of industry. Respondents indicated some collective uncertainty concerning the direction curricular reform should take. A substantial number, however, opposed abandonment of present-day programs for an entirely new concept.

Respondents accepted the idea of a "common core" of learning experience for industrial arts, but rejected the standardization and rigidity which many seemed to feel might be implicit in a uniform nationwide curriculum. Secondary teachers were particularly forceful in insisting on the necessity of some degree of heterogeneity to fit varying local conditions.

Statements referring specifically to a "nationwide curriculum" evoked wide diversity of opinion within groups, and in many cases a strong negative reaction.

The following conclusions and implications for education ensue from the findings of this study:

1. Curricular reform in industrial arts is at present a problem of considerable importance.
2. While there is some uncertainty as to the direction curricular reform in industrial arts should take, it is evident that the abandonment of traditional industrial arts programs is at present repugnant to a substantial percentage of industrial arts educators. Any curricular reform to be undertaken will, then, have to build on the present structure and offerings of industrial arts.
3. There is a need to seek, and within limits establish, a "common core" of learning experience for industrial arts that would be acceptable to most industrial arts educators.
4. Definite apprehension on the part of many industrial arts educators is evident concerning the terms "standardization," "uniform nationwide curriculum," and "national curriculum." These terms, and others similar in connotation, should probably be avoided by those wishing to achieve curricular reform.
5. Any nationwide guidelines to be developed by the profession must provide for a degree of freedom in their application according to diverse local situations.
6. Effective communication must be established among industrial arts educators at all levels, state education department personnel, and representatives of industry if any operative curricular reform in industrial arts is to emerge.

Order No. 71-4162, 125 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Clifton, Ronald, John
(Last name) (First name) (Middle name)

Exact Title THE FUNCTIONING SECONDARY SCHOOL COUNSELOR AS PERCEIVED BY VOCATION TEACHERES IN OHIO.

Degree granted Ph.D., Date 1970 No. of pages in report 167

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine how vocational teachers in the state of Ohio perceive the secondary counselor actually functioning.

Utilizing the survey method of research, a structured sample of fifty statements of counselor tasks was constructed and mailed to a random sample of eight-hundred vocational teachers throughout Ohio. The teachers represented five vocational areas: Vocational Agriculture, Vocational Home Economics, Distributive Education, Business Education, and Trades and Industrial Education. The counselor task instrument was constructed from the ten areas of professional responsibilities set forth in *Guidelines for Implementation of the ASCA Statement of Policy for Secondary School Counselors*.

Two-way analysis of variance conducted on these data resulted in the conclusion that these five vocational teaching groups do not hold differing perceptions of the secondary counselor. Also, the counselor is perceived by Ohio vocational teachers to function more in the student-related areas of Counseling, Pupil Appraisal, and Educational and Occupational Planning and less in the professional areas of Local Research, Public Relations, and Staff Consulting. It was further concluded that the secondary counselor is perceived to function less frequently in all ten areas of professional responsibility by vocational teachers who have no college degree. The secondary counselor is perceived to function more frequently in these professional areas by those vocational teachers who have taught longer in a school with a counselor, those who experience more personal contacts with the counselor, those who make more student referrals, and those who express satisfaction with their school guidance program.

Order No. 70-26,266, 167 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Conner (Last name), John (First name), Doyle (Middle name)

Exact Title A STUDY OF TECHNICAL TERMINOLOGY PERTINENT TO THE PREPARATION OF THE SECRETARY IN THE ELECTRONICS INDUSTRY.

Degree granted Ed.D., Date 1971 No. of pages in report 223

Granted by Boston University School of Education (Name of institution) Boston, Massachusetts (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Statement of the Problem

The problem of the study was to determine the most commonly used technical words and collocations in business communications, to develop shorthand outlines for the technical terms, and to provide authors and teachers with scientific data which could serve as a basis for developing materials to be used in the training of technical secretaries, stenographers, typists, and other office personnel.

Summary of Procedures

1. Written communications from 100 electronics companies were selected as the basis for the investigation. Six categories of the electronics industry from the *1967 Standard Industrial Classification Manual* were used to facilitate the classification and analysis of the data. A stratified random sampling technique was utilized in the selection of the 100 companies. The criterion for estimating the number of companies to be selected from each category was the proportionate number of people employed in that category.
2. The *Modern Dictionary of Electronics* was utilized to determine whether or not a word was a technical term, and Silverthorn's *Word Division Manual* was used to delimit the study.
3. Technical terms, collocations, prefixes, and suffixes were collected from written communications.
4. These terms were coded, tabulated, verified, and prepared for further analysis and classification.
5. The technical data were arranged alphabetically in six lists. Technical terms, collocations, prefixes, and suffixes with a frequency of five or more were considered common technical terms and were listed in rank order according to frequency.
6. A series of tables was constructed to guide teachers and authors in determining the amount of instructional time that would be desirable.

Summary of Findings

1. The sampling method utilized produced 2,950 pieces of written communications and represented six categories of the electronics industry.
2. The 2,950 written communications analyzed contained 500,000 running words, which included 36,318 technical terms, 5,086 technical collocations, 10,330 prefixes, and 6,069 suffixes.
3. The following technical terminology had a frequency of five or more in the written communications analyzed: (1) 615 technical terms, (2) 245 technical collocations, (3) 29 prefixes, and (4) 32 suffixes.
4. The average number of technical terms found in each written communication was 12.3.
5. The percent of technical terms in the 500,000 running words was 7.3.
6. The frequency and classification list revealed that many of the high frequency words are used throughout the industry.

Conclusions and Recommendations

1. Although the technical terminology used in the electronics industry is difficult, the number of different common technical terms and collocations is not extensive.
2. It would be advantageous for a prospective technical secretary to have a general knowledge of these technical terms and collocations as well as to be able to write the shorthand outlines.
3. The findings of the study may be used as a guide for the teacher planning courses and curricula for the technical secretary, stenographer, and typist.
4. Authors may use the data in the study to develop new educational materials.

Order No. 71-26,685, 223 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Craig, William, Lafayette Jr.
(Last name) (First name) (Middle name)

Exact Title A MODEL FOR THE ADMINISTRATION OF A DEPARTMENT OF INDUSTRIAL EDUCATION WITH SPECIAL REFERENCE TO NORFOLK STATE COLLEGE.

Degree granted Ed.D., Date 1970 No. of pages in report 145

Granted by Wayne State University Detroit, Michigan
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose: The purpose of this study was to develop a model for the administration of a department of industrial education. It was also intended to provide, through the use of the model, a means for the evaluation of administrative performance.

Method of Research: To construct the model an investigation of pertinent studies was undertaken to develop a comprehensive list of the duties performed by administrators. A review of theories of educational administration was undertaken to delineate one which could provide a suitable framework within which all of the duties could be described. Upon selection of a suitable theory the model was constructed, the duties being expressed in prescriptive terms as dictated by the theory.

To apply the model to evaluation two instruments were constructed. The prescriptions of the model were listed and spaces provided for the administrator to indicate whether he agreed or disagreed with the prescription and whether or not he practiced accordingly. A second instrument was prepared for the faculty. The prescriptions of the model were restated as elements of administration and to each was appended a five-point Likert-type scale so that each faculty member could express his satisfaction or dissatisfaction with the administrator's performance.

The instruments were applied to the evaluation of the administration of the Department of Industrial Education at Norfolk State College. The Administrator's responses were examined to determine how closely his performance matched the model. The responses of the faculty were compared to those of the administrator to determine whether there was any relation between the Administrator's adherence to the prescriptions and the faculty's satisfaction with his performance. Statistical significance was determined by the use of the Kalmogorov-Smirnoff test.

Summary: The model was constructed of thirty-six prescriptions, each expressing an administrative duty in terms of how it should be performed. The responses of the administrator showed that he agreed with thirty-four of the prescriptions and that he practiced in accord with thirty of them. The faculty responses showed significantly high levels of satisfaction with twenty of the thirty prescriptions. For four of the prescriptions with which the administrator agreed but did not practice the faculty responses also indicated a high level of satisfaction. For the two prescriptions with which the administrator did not agree and did not practice the faculty indicated for one a high level of satisfaction and for the other, a level too low to be significant.

Conclusions: The method of constructing the model by interpreting the duties in the context of a theory appears to have merit. The close agreement in the lists of duties in the studies suggests that the method is sound and the compiled list of duties is accurate.

In building a model by this method the choice of a theory seems to be guided by the purpose of the model. Since this model was intended to treat administration at the level of position vis-a-vis position Parson's theory, being constructed at the same level, was found to be satisfactory. The conclusion that the model expressed an ideal was drawn with strong reservations and based upon the rigor of its construction and the high level of agreement expressed by the administration.

The use of the model an an instrument for evaluation was viewed from the standpoint of process and of substance. It was concluded that the process of transforming the model into an instrument for evaluation was simple enough to make it practical. The results of the application of the evaluation process did not yield conclusive findings, rather it was suggested that the results be viewed as contributing to an evolutionary process which would lead to further examination and treatment of areas of dissatisfaction.

Order No. 71-17,254, 145 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Cremer (Last name), Kenneth (First name), Dale (Middle name)

Exact Title A COMPARISON OF BEHAVIORAL OBJECTIVES WRITTEN WITH AND WITHOUT THE USE OF "BEHAVIORAL OBJECTIVE PLANNING GUIDES".

Degree granted Ed.D., Date 1970 No. of pages in report 114

Granted by Utah State University (Name of institution) Logan, Utah (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Instruments were used to determine teachers' ability to write behavioral objectives to the criteria advocated by Robert Mager and to the six categories of the *Taxonomy*. Behavioral objective planning guides were developed by the researcher to determine if they could aid teachers when writing behavioral objectives. One hundred eighty teachers were used in the sample. Teachers were tested without aid; with Mager's criteria; and with behavioral objective planning guides. A six-member jury was used to determine if objectives written by the sample were behavioral objectives properly written to Mager's criteria and to which category of the *Taxonomy* the thinking level stipulated by the behavioral objectives matched. An analysis of variance was computed to determine significance between judgments made by the jury members and differences between groups and levels used in the study. Statistical differences were found between judgments made by the jury members, as well as between groups and levels used in the study.

Order No. 70-27,002, 114 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Cushing (Last name), Nelson (First name), Norman (Middle name)

Exact Title COMPARISON OF SUPER 8mm SILENT FILM LOOPS PRESENTATION VERSUS LIVE PRESENTATION FOR TEACHING MACHINE OPERATIONS.

Degree granted Ed.D., Date 1971 No. of pages in report 239

Granted by Arizona State University (Name of institution) Tempe, Arizona (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of this study was to compare Super 8mm Silent Film Loops presentations with live presentations to determine if Super 8mm Silent Film Loops presentations are effective for teaching machine operations.

Another objective was to determine the possibility of using Super 8mm Silent Film Loops presentations to: (1) effectively educate more people, (2) keep education abreast with technological change, and (3) individualize instruction.

The null hypotheses tested were that there is no significant difference between two groups when taught by film presentations and live presentations, respectively, for the: (1) achievement of knowledge, and (2) performance of machine operation application.

Procedures

The experimental method using the parallel-equated-group-rotational design was used.

The population for the experiment consisted of two intact, existing general metals classes (Group A and Group B), with 20 and 26 students respectively, at Arizona State University with random selection.

The experiment was conducted over a period of eight weeks in the following four units: (1) Lathe I, (2) Lathe II, (3) Horizontal Milling Machine, and (4) Vertical Milling Machine.

Prior to each unit of instruction, pretests were administered. After each unit of instruction, post-tests were given. The mean gains (post-tests minus pretests) represented the immediate achievement of knowledge.

Manipulative performance tests were conducted during the experiment to measure the performance of machine operations. A checklist and rating scale was used.

Data on the frequency of individual assistance required was maintained throughout the experiment.

Upon completion of the experiment, a student opinionnaire was administered to determine students' opinions, attitudes and preferences toward the two techniques of instruction under investigation.

Six weeks after the completion of instruction, delayed tests were administered to measure the retention of knowledge.

Analysis of the Data

For this study the .05 confidence level was used.

Fisher's t test indicated there was no significant difference in the achievement of knowledge between the two techniques of instruction investigated.

The Mann-Whitney U-test showed there was no significant difference in the performance of machine operation application between the two groups.

The mean frequency of individual assistance required indicated the commercial film presentations required considerably more assistance than live presentations. However, there were no substantial differences between the live presentations and instructor-produced film presentations.

Chi square was applied to the student opinionnaire, indicating several significant opinions toward the two techniques of instruction investigated.

Findings and Conclusions

The major findings and conclusions of this study were:

1. There were no significant differences between groups when taught by film presentations or live presentations for: (a) the immediate achievement of knowledge, (b) the retention of knowledge, and (c) the performance of machine operation application.
2. Students preferred: (a) live presentations to film presentations, (b) instructor-produced films to commercial films, and (c) a combination of live and film presentations.
3. Instructor-produced films were more effective than commercial films.
4. Super 8mm Silent Film Loops presentations were effective for teaching machine operations.
5. Super 8mm Silent Film Loops can be used to: (a) effectively educate more people, (b) keep education abreast with technological change, and (c) individualize instruction.

Recommendations

The following recommendations appear warranted:

1. Super 8mm Silent Film Loops presentations should be used for teaching machine operations and related subject matter.
2. Additional investigations of Super 8mm Silent Film Loops presentations in other industrial education areas are needed.
3. Film making should be included in the curriculum, workshops and in-service programs for industrial education teachers.
4. Industrial education teachers should produce their own films to meet local needs and at the same time provide an opportunity for teacher growth and development.

Order No. 71-24,388, 239 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Daugherty, Ronald, DeWayne
(Last name) (First name) (Middle name)

Exact Title IDENTIFICATION OF FACTORS INFLUENCING HIGH SCHOOL STUDENTS IN SELECTING AN OCCUPATIONAL PROGRAM MAJOR IN AN OREGON COMMUNITY COLLEGE.

Degree granted Ed.D., Date 1971 No. of pages in report 147

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The study was devoted to formulating answers to the following questions:

1. What factors did students report to be influential in their choice of a community college major?
2. What factors influenced students in the selection of a community college to attend?
3. What factors influenced students to continue their education within the first year following high school graduation?
4. Were the rank order of factor groups correlated by student's sex, by high school background and by when the selection of a community college major was made?

The study included students of associated degree occupational programs from 11 of Oregon's 12 community colleges. Twenty winter term (1970) occupational classes were selected and surveyed. The 125 students from these classes that had graduated from high school in 1969 served as the population for the questionnaire survey. From the 125 student population, 34 students were selected for in-depth interviews.

A profile was developed including the students' high school background and the time they made their choice of an occupational major. The findings indicated a student's choice of a community college major is influenced most by his "interest in the subject matter," "employment potential," "parents," "previous experiences on a job" and "influences of the high school." A rather consistent significant correlation of rank orders of factor categories existed between all groups in their responses to influences in selecting a community college major.

In selecting a community college to attend, students are influenced most by the "convenience in location of the college to their home," by "tuition rates" and the "limitation of personal and family finances."

Several factors influenced students in reaching a decision to continue their education in a community college during the first year following high school. "Parents," the "desire for self-improvement," "employment potential," the "lack of anything else to do," "high school counselors" and "high school classmates" were the more influential factors in this decision. The males are also influenced to choose to attend a community college right after high school to avoid the draft.

Implications for future action were developed and are included in the study.

Order No. 70-27,024, 147 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Dennison (Last name), Bobby (First name), none (Middle name)

Exact Title THE EFFECTIVENESS OF EIGHT MILLIMETER FILM FOR TEACHING SELECTED ELECTRONIC FUNDAMENTALS.

Degree granted Ed.D., Date 1970 No. of pages in report 150

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This research involved an experimental comparison between conventional and experimental methods of teaching selected basic electronic units. The purpose was to determine the effectiveness of an experimental method for teaching basic electronic fundamentals. The conventional method included lecture, demonstration, and discussion. The experimental method was comprised of the conventional method supplemented with eight-millimeter, single-concept films.

A jury of nine college and university teachers of electronics selected five basic units for presentations. The selected units included the effects of resistance, capacitance, measuring instruments, amplification, and rectification. Eight films were developed for this experiment.

Seven different measuring instruments were used in this investigation. The pre-test included seventy-five multiple choice items. This test was used as a post-test six weeks after the final unit was administered. Each unit test was comprised of twenty multiple choice items. Objective test items eliminated subjectivity in scoring.

One college and two university teachers were involved in this investigation. Each teacher taught an experimental group and a control group. Two participating teachers possessed the Doctor of Education degree and one teacher held the Master of Education degree. The teaching experience varied. One teacher had eleven years of college and university teaching experience, one five years, and another three years.

This research involved 110 participating students. Student's achievement, as indicated by the measuring instruments, was periodically checked throughout the study. These test results were used to determine the effects upon increasing initial learning and overall retention. Seven test scores were collected for each participant.

The principle conclusions were:

1. A difference in teaching methods was prevalent as indicated by student achievement.
2. Initial learning was increased when conventional methods were supplemented with eight-millimeter, single-concept films.
3. Student retention was superior when conventional methods of teaching were supplemented with eight-millimeter, single-concept films.

Recommendations based on analysis of the data included:

1. Similar studies should be attempted to determine whether eight-millimeter, single-concept films in general or only certain eight-millimeter, single-concept films are effective.
2. A similar investigation should be conducted to determine the effectiveness of eight-millimeter, single-concept films when used to teach total units of electricity or electronics.
3. Additional projects should be undertaken to investigate to what extent teaching time may be reduced without hampering initial learning and overall retention.
4. An attempt should be made to compare silent eight-millimeter, single-concept films with sound eight-millimeter, single-concept films.
5. Further investigation should be conducted to determine whether the experimental method has any correlation with teacher experience.

Order No. 71-17,851, 150 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Diedrick (Last name), Walter (First name), Emil (Middle name)

Exact Title EVALUATION OF THE INDUSTRIAL-EDUCATION PROGRAM AT IOWA STATE UNIVERSITY, 1959-1969.

Degree granted Ph.D., Date 1971 No. of pages in report 266

Granted by Iowa State University (Name of institution) Ames, Iowa (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to aid in developing an improved industrial-education program by seeking out opinions held by graduates relative to their needs, and using these opinions as a means to determine the recommended course emphasis.

The major objectives of the study were:

1. To group the graduates according to factors relating to their occupational classification and specific area of work.
2. To determine the degree of importance that is placed on course content within major instructional areas.
3. To determine what course content is considered necessary to enable the graduates to meet the needs of the various occupations.

The data were collected with a mailed questionnaire which was sent to 305 Iowa State University industrial-education graduates who received Bachelor of Science degrees from August, 1959 to August, 1969.

The findings were arranged in two major divisions—status of the graduates, and importance placed on course content. Of the 248 who responded, 113 reported employment in some phase of education and 135 reported employment in industry.

The median of reported salaries was approximately $10,500 for all graduates; $11,250 for those employed in industry, and $9,900 for those in the education classifications.

Manufacturing firms employed the greatest number of industry graduates. Supervising was the industry area of work most frequently reported.

Graduates employed in education most frequently indicated high school as the occupational group, and area-unit laboratory instruction as the area of work.

Course-content evaluations were grouped according to industry and education classifications, occupational groups, and areas of work.

Content areas evaluated 'Essential' or 'Important' by both industry-option and teaching-option graduates were fundamentals of algebra, fundamentals of trigonometry, and communication skills.

More respondents who were employed in education rated industrial-education content 'Needed' than did respondents employed in industry.

The content of teaching methods courses was listed as nine elements. These elements, in order of importance, were: determining course content, developing competency in the teaching act, developing courses, selecting and caring for equipment, evaluating student progress, understanding public relations, understanding the teacher's role in the profession, planning daily lesson plans, and preparing a budget.

Order No. 71-26,848, 266 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Dolan (Last name), Robert (First name), Edmund (Middle name)

Exact Title AN ENVIRONMENTAL ASSESSMENT OF WILBUR WRIGHT COLLEGE BY STUDENTS IN DIFFERING CURRICULA PROGRAMS.

Degree granted Ph.D., Date 1971 No. of pages in report 141

Granted by Loyola University of Chicago (Name of institution) Chicago, Illinois (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The central purpose of this study was to discover how students enrolled in different curricula programs (Vocational-Technical, College Transfer, and General Studies) assessed (1) the quality of instruction, (2) the value of various student services, and (3) specific college policies, practices and facilities. It was also the purpose of this study to determine if various success rate measures were related to the students' assessment of the college.

The null forms of the four hypotheses developed are:

(1) There is no significant difference in the perception of the value of student services when comparing students by academic programs.
(2) There is no significant difference in the perception of the effectiveness of classroom instructors when comparing students by academic programs.
(3) There is no significant difference in the perception of the appropriateness of selected college policies, practices and facilities when comparing students by academic programs.
(4) There is no significant relationship between student success and student perception of student services, instructors, and college policies, practices, and programs.

Random samples of full-time beginning freshmen from each curricula program were selected. One hundred students in each program were requested to complete the Institutional Self Study Survey (ISS) and an overall response rate of eighty-nine per cent resulted. The three subgroups' assessments of the various college environmental factors were analyzed and compared using the t-test to determine significant differences. Pearson's Product Moment correlations were used to determine relationships between student assessment and student success. Descriptive profiles of each student group were also presented, in order to gain insight and better understand the results of this study.

The null hypotheses were supported in three of the four cases. However, the hypothesis concerning the assessment of student services was not supported and was thus rejected. The three groups differed significantly in their evaluation of selected student services. More specifically, College Transfer students rate the Faculty Advising service and the Student Counseling service significantly lower than do the Vocational-Technical and General Study students. The College Transfer students also assessed the College Orientation service significantly lower (less valuable) than did those students in the General Studies program.

Other findings indicate that:

(1) Students view vocational goals, as opposed to social goals or academic goals, as the most essential college goals.
(2) A large percentage (25%) are undecided in terms of future vocational role preferences.
(3) Students view college rules and policies as appropriate.
(4) Classroom instructors are assessed as capable, understanding and competent teachers.
(5) Students assess the college social program as inadequate and unsuccessful.
(6) Students in the College Transfer program are the most successful in terms of grade point averages, persistence, and self-ratings of educational progress. General Studies students are the least successful.

Recommendations to the Wright College community, based upon the results of the study, are presented.

Order No. 71-22,734, 141 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Drawdy (Last name), Larry (First name), Allen (Middle name)

Exact Title THE EFFECT OF A STUDENT TEACHING EXPERIENCE ON BEHAVIORAL ROLES OF SELECTED STUDENT TEACHERS AT MISSISSIPPI STATE UNIVERSITY.

Degree granted Ed.D., Date 1971 No. of pages in report 96

Granted by Mississippi State University (Name of institution) State College, Mississippi (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to gain insight into the effect of a student teaching experience on projected behavioral roles of selected student teachers attending Mississippi State University during the spring semester (1970).

The population of this study was composed of 256 student teachers. The subject fields used in this investigation were grouped into eight categories: elementary education; special education; English, speech, and foreign languages; social studies; mathematics and science; business education and industrial arts; physical education; and agricultural education.

The Teacher Practices Questionnaire (Form 2) was used in collecting the data for this study. A pre-test and post-test design was utilized for this investigation. The instrument consisted of thirty problem situations typical of those student teachers might encounter in a working school day. Each problem had four alternative solutions. The alternative courses of action were scored on their degree of appropriateness. There were five possible roles in which a teacher could be classified: advice-information giver, counselor, disciplinarian, motivator, and referrer.

The subjects were given Test I prior to the beginning of their student teaching experience. After approximately eight weeks of actual classroom experience, Test II was administered to each of the subjects.

The *t* test was used to obtain the significance of the difference between means recorded from the same group on two different occasions. The .05 level of significance was used to analyze each of the behavioral roles.

Null hypotheses were formulated for each of the eight previously mentioned subject fields and for the total group of student teachers. The hypotheses stated that the behavioral roles of selected student teachers would show no statistically significant differences between the means of Test I and Test II for the five projected teacher roles. It was expected that the selected student teachers would change in their perceived behavioral roles after participation in a student teaching experience.

No statistically significant differences were found between Test I and Test II for any of the five projected behavioral roles in any of the eight subject field groups investigated. There was no statistically significant difference between Test I and Test II for the five projected behavioral roles in the total group of selected student teachers. Therefore, all nine null hypotheses were accepted. Although no statistically significant differences were observed in any of the groups, analysis of the data may indicate certain trends.

The mean scores of the elementary education group changed very little on the advice-information giver, motivator, and referrer roles with a slight decrease shown in the counselor role. An opposite trend appeared in the disciplinarian role.

The special education group illustrated decreases on the advice-information giver, motivator, and counselor roles; and showed increases between Test I and Test II for the disciplinarian and referrer roles.

The mean scores of the English, speech, and foreign languages group showed only slight increases from Test I to Test II on the advice-information giver, disciplinarian, and referrer roles. A small decrease was noted on the counselor and motivator roles.

The social studies group illustrated an increase in the mean scores on all behavioral roles except the counselor role which showed a decrease.

A slight increase in the mean scores was observed for all five behavioral roles with the exception of the counselor role in the mathematics and science group.

An increase in the mean scores was noted in the advice-information giver and referrer roles for the business education and industrial arts group; the disciplinarian role illustrated no change. The motivator and counselor roles showed a decrease in their means from Test I to Test II.

The behavioral roles in the physical education group reflected increases of mean scores between Test I and Test II except the counselor role which showed a decrease.

All the behavioral roles showed decreases in Test II from the means presented in Test I for the agricultural education group with the exception of the referrer role.

The total subjects group illustrated decreases from Test I to Test II on the counselor and motivator roles. The advice-information giver, disciplinarian, and referrer roles showed increases in their mean scores from Test I to Test II.

Order No. 71-22,649, 96 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Drennan, Jerry, Dale
(Last name) (First name) (Middle name)

Exact Title THE EFFECT OF INDUSTRIAL EDUCATION ON EDUCABLE MENTAL RETARDATES ENTERING THE LABOR FORCE.

Degree granted Ed.D., Date 1970 No. of pages in report 188

Granted by Texas A&M University College Station, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

A major goal of education is to assist the educable mentally retarded (EMR) individual to develop to his highest potential. Basic vocational capabilities in the educational process should be characterized by the learning of specific vocational content and skills, especially for students of high-school age enrolled in special education programs. A review of literature reveals that the most successful method of training EMR students is through cooperative work-study programs.

The intent of this study was to determine whether or not workers who participated in a course of industrial education were rated as better workers than those mentally retarded individuals who had not experienced such an opportunity. Other considerations included the type of classes in industrial education available, the length of time an individual was enrolled in the program, and the size of the school system.

A major objective of this project was the development of an Employee Evaluation Checklist which has been utilized by employers in rating their employees. An outstanding group of teachers, counselors, and employers who were experienced in both industrial education and special education served as the jury.

Personal visits made to schools were followed by observations of EMR cooperative programs. An Employee Evaluation Checklist was sent to each employer. The resultant data was used in the statistical analysis.

Three different analyses were made of each of the ten items of the Employee Evaluation Checklist. The first analysis compared three groups: regular and special industrial education students and students with no industrial education. The second analysis omitted students with no industrial education. The third analysis combined regular and special industrial education students and then compared them with students with no industrial education.

Eighteen school systems with over 300 EMR work-study students were the participants of the study. Of these, 30.8% were girls. Total returns from employees totaled 75.9%. The largest school systems had a total of 112 students employed out of a possible 131. The medium sized schools had a total of seventy-six students employed out of a possible seventy-nine. The smaller school systems had a total of eighty-eight students employed out of a possible ninety-three. Of the school systems studied, ten provided opportunities for the students to take some form of industrial education. All of the school systems studied provided some form of non-academic type of class for these students.

Four of the dependent variables of the Employee Evaluation Checklist were not significant in any of the analyses. They are "accepts constructive criticism," "character," "cooperation," and "promptness." Significant variables include "cautious," "citizenship," "dependability," "follows directions," "perseverance," and "relationship to co-workers."

The following recommendations are based on the results of the analysis of the data collected and on observations made throughout the study.

1. A standardized report form for evaluation of employees is beneficial to teachers, counselors, and employers.
2. Sheltered jobs within the school atmosphere should be developed for retardates.
3. Good relations with the parents of special education students should be maintained.
4. Vocational adjustment counselors are anxious for EMR students to enroll in industrial education classes.
5. When industrial education classes are provided for the retarded student, regular classes are usually more beneficial for the individual.
6. There is some indication that student-workers are rated higher by their employers if they are enrolled in their first semester of class experience.
7. Retardates from larger school systems are often more successful.
8. An industrial education background will be most beneficial to students who will be placed in positions where cautiousness and a good relationship to co-workers is necessary.

Order No. 71-17,852, 188 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Drost, Jim, L.
(Last name) (First name) (Middle name)

Exact Title JOB CHARACTERISTICS OF AUTOMOTIVE MECHANICS IN SELECTED IOWA DEALERSHIPS AND GARAGES.

Degree granted Ph.D., Date 1970 No. of pages in report 137

Granted by Iowa State University Ames, Iowa
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The major purpose of this study was to survey the job characteristics of automotive mechanics in Iowa dealerships and garages. Specific objectives were to determine: (1) the jobs performed by automotive mechanics, (2) proportions of time spent in major areas, (3) level of training expected of post-secondary graduates, (4) skills and competencies expected, and (5) personal characteristics of mechanics surveyed.

Service managers evaluated the importance to an automotive mechanic of personal characteristics and competencies, the ability to use major automotive repair equipment, the importance of technical knowledge, and the importance of technical skills. The percentage of jobs completed each year in 11 major areas of automotive service was estimated and how specific shops serviced 17 automotive components or systems. Personal data sheets were completed by 242 automotive service personnel employed in the 40 shops surveyed. Job tickets were drawn for a final compilation of almost 15,000 individual jobs to determine the frequency of performance.

In summary, 60 percent of the automotive service personnel were general line mechanics. Sixty-seven percent reported a completion of at least four years of high school.

Sixty-three percent of the service managers interviewed indicated the desire to employ graduates as general line mechanics.

Most personal characteristics and competencies listed were evaluated as being desirable, highly desirable, or essential.

Automotive repair equipment receiving highest values were the valve grinder, timing light, compression gauge, and lifting devices. Most of the equipment common to the automotive trade received a rating of desirable or above.

Forty-three of the 51 items listed under technical knowledge received a rating of desirable or above. Sixty-four of the 73 items listed as technical skills were rated as desirable or above.

Most service work in the 11 major areas fell within the 11 to 20 percent range of total time spent. No responses were greater than 60 percent.

Service records revealed the following percentages for jobs completed: engine, 27; general, 11; chassis, 10; electrical system (wiring), 9; fuel system, 8; accessories, 7; brakes, 6; lighting, 6; transmission, 6; starting, 3; charging system, 3; rear end, 2; and clutch, 2.

Recommendations were that: (1) a review and revision of existing programs be made in light of the study findings, (2) findings of this study be presented to area school administration and automotive instructors, (3) two-year programs be organized, the first year devoted to application of basic fundamentals and the second year to more advanced work, (4) a direct line of communication be established between the automotive servicing industry and the schools serving it, (5) early career education and counseling be provided, and (6) the development of acceptable personal characteristics and positive attitudes be stressed.

Order No. 71-7261, 137 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Dugger, William, Edward
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE COMPARISON OF THE ACHIEVEMENT OF INDUSTRIAL ARTS CURRICULUM PROJECT STUDENTS WITH TRADITIONAL INDUSTRIAL ARTS STUDENTS.

Degree granted Ph.D., Date 1970 No. of pages in report 150

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

In the past decade, there have been several new curriculum approaches to industrial arts education. These new approaches arose primarily out of a need for a more industry-centered curriculum rather than the traditional trade-centered curriculums that have been common in industrial arts for the past half century.

One new approach to restructuring the industrial arts curriculum has been the Industrial Arts Curriculum Project. This has been a joint effort of The Ohio State University and the University of Illinois, with financial support from the United States Office of Education, organized labor, management, professional associations, and numerous educational agencies. This developmental curriculum study has resulted in a two year industrial arts program for the junior high school. The first year course, called "The World of Construction," is a study of man's managed production system which produces society's constructed products. The second year course, "The World of Manufacturing," is a study of man's managed production system which produces society's manufactured products.

This study compared the achievement of Industrial Arts Curriculum Project students in "The World of Construction" course with students in traditionally-taught industrial arts courses. A third group of students, who had no industrial arts, was used as a control group. The study involved 287 seventh grade students from the Columbus, Ohio, public and parochial schools. Tests were administered as posttest instruments to intact classroom groups at the conclusion of the 1969-70 school year. An attempt was made to make the three groups of students socio-economically and educationally equivalent.

Two achievement-test instruments were used for gathering the data. One of the achievement tests, The General Industrial Arts Test (Form A) produced by Educational Testing Service, assessed student performance on traditionally-taught industrial arts content. The second test, the "World of Construction" Comprehensive Examination II, assessed student performance on the innovative industrial arts content.

In each achievement test, there were groups of items that were classified as sub-tests. The study also evaluated the two industrial arts groups on the sub-test areas in each achievement test. Some additional educational and occupational questions were asked to the students.

The statistical analysis of the data used item-analysis, modified t-test, and stepwise multiple regression analysis. The findings revealed that the Industrial Arts Curriculum Project (IACP) students performed significantly better (at the .05 level or lower) than the traditionally-taught industrial arts students and the parochial students on the World of Construction Comprehensive Examination II. This was also true of the total mean achievement level of the IACP students on all of the sub-test areas on this test.

There were no significant differences (at the .05 level) among the three groups of students on the General Industrial Arts Test. Also, there was no significant difference in the mean achievement scores of the two industrial arts groups on the four sub-test areas of this test. The student I.Q. was found to be a valid predictor of the mean achievement level of all three groups of students taking both tests. However, the age of the student was not found to be a significant predictor of student performance on either test. A majority of all three groups of seventh grade students indicated that their thinking towards future educational plans had changed in the past year. Both groups of industrial arts students responded that the industrial arts course, in which they were currently enrolled, had helped them in formulating their future educational plans. Neither a majority of IACP students, traditionally-taught industrial arts students, nor non-industrial arts students said they were considering future employment in woodworking, metalworking, drafting, or construction.

Order No. 71-7435, 150 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Dunham (Last name), Phil (First name), R. (Middle name)

Exact Title A COMPARISON OF INTERESTS FOR SELECTED COLLEGE MAJORS AT SOUTHEASTERN STATE COLLEGE

Degree granted Ed.D., Date 1970 No. of pages in report 183

Granted by Oklahoma State University (Name of institution) Stillwater, Oklahoma (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Scope and Method of Study: The purposes of this study were (1) to measure selected interest characteristics of female graduates in each of eight major areas: (a) business, (b) elementary, (c) English, (d) foreign language, (e) mathematics, (f) social studies, (g) music, (h) home economics; (2) to measure selected interest characteristics of male graduates in each of eight major areas: (a) business, (b) elementary, (c) mathematics, (d) physical education, (e) social studies, (f) science, (g) industrial arts, (h) English; and (3) to identify those specific interest characteristics which would significantly discriminate between graduates in the eight different areas.

Students tested had graduated from Southeastern State College since 1965, and a total of 570 students were included in the study with all students having completed Form C of Kuder's Preference Record-Vocational as freshmen.

Techniques of analyses utilized were the discriminate function and analysis of variance. The discriminate function was used to validate the existence of sufficient differences in interest characteristics of the groups to provide a basis for discrimination among them and to classify students as belonging to one particular group. This was followed by an analysis of variance of mean scores for each group on each of the ten variables of the Kuder to identify the specific variables on which significant differences were present. Comparisons were made on two groups at a time, and each group was compared with all other groups. The groups were divided by sex and compared with other groups of the same sex, and no comparisons were made between sexes.

Findings and Conclusions: Specifically the findings of this study become the basis for the following conclusions: (1) The statistical procedure used in this study (discriminate function and analysis of variance) supports the theory that different majors possess certain interest traits which are distinctive to their major area. (2) Students can be classified by academic major according to a predetermined interest profile. (3) Specific interest characteristics were identified which distinguish one major from another.

Order No. 71-11,134, 183 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Elias, John, Edward
(Last name) (First name) (Middle name)

Exact Title A MANAGEMENT APPROACH TO IMPLEMENTING THE NEBRASKA STATE PLAN FOR VOCATIONAL EDUCATION.

Degree granted Ed.D., Date 1970 No. of pages in report 216

Granted by University of Nebraska Lincoln, Nebraska
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Problem

The purpose of this study was to develop a system for the Nebraska State Division of Vocational Education to utilize in administering the federal funds received by the state from the Vocational Education Amendments of 1968. More specifically, the study was designed to ascertain: (1) criteria to be utilized in determining the relative priorities of each of the program purposes for the state as a whole; (2) criteria to be utilized in determining the relative priorities of local educational agency applications; (3) procedures to be employed in applying the criteria in (1) and (2) above to determine the funding priorities for each of the program purposes for the state and for the distribution of funds to local educational agencies; (4) possible methods to be utilized in obtaining data on which to apply the criteria in (1) and (2) above; (5) procedures for the development of the annual program plan and the methods of gathering the data for this plan; (6) procedures for the development of the long-range program plan and the methods of gathering the data for this plan; and (7) the criteria and procedures for the evaluation of programs, services, and activities assisted by the Act.

Procedures

A profile of vocational education in Nebraska was developed by analysis of data regarding vocational education enrollments, graduates and expenditures. Objectives for the various parts of the state plan were determined by analysis and interpretation of the Act, the rules and regulations established by the U.S. Office of Education, and other publications of the U.S. Office of Education. The various methods and approaches developed by the states to meet the objectives for the state plans were analyzed and classified through personal visitations and interviews with public officials responsible for the administration of vocational education. A model for the administration of vocational education in Nebraska was developed. Simulation was utilized to test the validity and appropriateness of the model.

Conclusions

The data comparing the Nebraska labor market needs in the occupational areas with program enrollments and reimbursement indicate that a serious imbalance exists in emphasis among the individual vocational programs on the secondary level.

While many of the state plans examined appeared to specify the utilization of all available data to determine the allotments to the Part B program purposes, the decisions were primarily subjective. Some states developed subjective procedures for ranking the local educational agencies for funding priorities while other states proposed systems which were objective in nature. Two general classes of systems were developed: A formula approach based upon one or more mathematical formulas, and a weighted rating scale. Both approaches appear to have merit although the formula system appears to lend itself more readily to computerization.

Recommendations

As a result of this study, the following recommendations are made:

1. An integrated system should be developed and implemented for the management and operation of vocational education.
2. Specific objectives and definitive purposes which are refinements of the legislative intent should be developed for the state-wide program.
3. Both expected and desired outcomes on an annual and long-range basis should be identified in addition to the broad program goals.
4. The procedure for allocating funds to local educational agencies should be used as a management tool to assist in carrying out the objectives of the state-wide program.

Order No. 71-9553, 216 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Ellis (Last name), Mary (First name), Louise (Middle name)

Exact Title A SYNTHESIS OF ACTIVITIES LEADING TO THE ENACTMENT OF THE VOCATIONAL EDUCATION ACT OF 1963.

Degree granted Ed.D., Date 1970 No. of pages in report 281

Granted by Oklahoma State University (Name of institution) Stillwater, Oklahoma (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Scope and Method of Study: This study was concerned with the historical development of issues and activities which led the 88th Congress, 1st Session, to enact the Vocational Education Act of 1963, Public Law 88-210. The overall purpose of this research was to bring together in one document those positions and proceedings associated with the design and adoption of Public Law 88-210. Additional purposes of this study were: To develop a brief chronology of Federal Vocational Education Acts preceding the enactment of the Vocational Education Act of 1963; to analyze education and training legislation proposed and enacted by the 87th Congress in 1961-1962; to identify and document issues relative to education legislation proposed by the Administration and considered by the 88th Congress, 1st Session; to set forth arguments which were advanced by proponents and opponents of the vocational education measure considered and acted on in 1963; and to develop a synthesis of activities concerning discussions, debates, and decisions related to the formulation and enactment of the Vocational Education Act of 1963.

To identify issues associated with the consideration of the proposed vocational education measure of 1963, an examination was made of written source documents, such as the Administration's education messages to the Congress; hearings before the General Subcommittee on Education of the Committee on Education and Labor, House of Representatives; and hearings before the Subcommittee on Education of the Committee on Labor and Public Welfare, United States Senate; and Committee Reports of the House and Senate. The *Congressional Record* was also examined for issues and positions developed during the House and Senate debates. The *Congressional Quarterly*, *Congressional Almanac*, and *Public Papers of the Presidents* were also examined.

Findings and Conclusions: The Vocational Education Act of 1963 was an apparent outgrowth of economic conditions and societal needs which existed in the United States in the late 1950's and early 1960's. The nation's most urgent domestic problem was unemployment while paradoxically millions of jobs which required skilled workers continued unfilled. Concomitantly, the country was undergoing a technological revolution unparalleled in history. The Vocational Education Act of 1963 was an apparent reaffirmation by the United States Congress of its long-term interest and support to provide vocational education opportunities for the nation's citizens.

Order No. 71-11,138, 281 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Enck (Last name), Henry (First name), Snyder (Middle name)

Exact Title THE BURDEN BORNE: NORTHER WHITE PHILANTHROPY AND SOUTHERN BLACK INDUSTRIAL EDUCATION, 1900-1915.

Degree granted Ph.D., Date 1970 No. of pages in report 586

Granted by University of Cincinnati (Name of institution) Cincinnati, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Based largely on manuscript collections of Northern philanthropists and the voluminous Booker T. Washington Papers, this study is divided into three main categories: the racial attitudes, motivating factors, and "Southernization" of the philanthropic movement; the work of organizational philanthropy; and the efforts of black industrial school leaders to attract philanthropic monies for their schools. Also included are chapters on the background of philanthropic involvement in black industrial education in the late nineteenth century, biographical sketches of representative philanthropists, black and Southern white newspaper reactions to the philanthropic movement, and a balance sheet on the whole philanthropic effort, 1900-1915.

From the beginning of the period, Northern white philanthropists had preconceived notions of black inferiority and were strongly opposed to political or social equality for blacks. Likewise, motivated by a variety of factors, included among which were economic, religious, and White Man's Burden considerations, they became almost obsessed with the cementing of intersectional reconciliation. For the philanthropists, former abolitionists included, knew full well that the white South would accept industrial rather than academic education for blacks because it helped re-enforce racial subordination while giving the appearance of "uplift."

Organizational philanthropies and various church home mission boards gave increasing emphasis to black industrial education during the period 1900-1915. But the Jeanes and Slater funds were simply too small to make significant dents in the financial problems of black schools. The church home mission boards were highly conservative in their approach and appeared more interested in attracting converts than in educating Southern blacks. The General Education Board focused more on the "forgotten white child" in the South than on the black. Thus, organizational philanthropy's contribution to black industrial education was minimal, and a source of large disappointment for most black educators.

While black financial agents in the North did not neglect organizational philanthropy, their appeals were made largely to individual philanthropists. Combining all the fund raising techniques of the period, they waged an untiring and constant effort to attract the philanthropic dollar. Hampton, Tuskegee, and the other smaller black industrial schools all flooded the North with spiritual-singing quartettes, troupes of students who presented short plays, and numerous fund raisers as well. Their efforts met with varying degrees of success until the uneasy financial situation produced by World War I, the diminishing support and roving eyes of religious-minded philanthropists, and the distractions of other appeals for aid in the North combined by 1915 to leave black industrial schools in an all too familiar financial squeeze.

Thus, what had begun as a movement of strong potential for black industrial education ended on a note of disappointment and despair for black industrial school educators. By 1915 Washington and his contemporaries were bitterly frustrated by the sparse fruits of philanthropic labors: a few hundred "Rosenwald" schools, Jeanes supervising teachers, summer teacher's institutes, small sums for most black industrial schools, and a temporary upsurge of white interest.

From the prespective of history, however, other negative factors stand out. Philanthropists relied almost solely on industrial education, an educational philosophy singularly out of tune with the urban-industrial age. They geared their business practices to the new age, but left their educational philosophy for blacks back in the days of the late nineteenth century. Moreover, since they consistently acquiesced in the wishes of the white South, they made no challenge of importance to the prevailing sentiment of that region on racial matters. Their approach was conservative toward a situation that needed radical change and fresh innovation, and thus was destined to fail.

Order No. 71-1512, 586 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Engelbart (Last name), Leon (First name), Prange (Middle name)

Exact Title DEVELOPING A VOCATIONAL EDUCATION CURRICULUM MODEL

Degree granted Ed.D, Date 1970 No. of pages in report 187

Granted by University of Nebraska (Name of institution) Lincoln, Nebraska (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the study.

The purpose of this study was to develop an individualized instructional model which would make students employable and productive workers when they leave the secondary school.

Significance of the study.

The results of this study should provide a practical guide for the school system which wishes to individualize instruction in the selected area and to extend the model to other areas of vocational education.

Procedures.

The procedures employed in this study involved five phases. They were: (1) a review of the literature and related research to obtain a brief history of vocational education and a summary of the area of educational planning, (2) a determination of the vocational area, job titles, competencies, and performance criteria, (3) a survey of selected in-service training programs in industry, (4) the development of the instructional model, and (5) the development of a plan for implementing the model.

Findings.

1. The literature revealed a need for (a) trained workers and the resulting federal legislation, (b) more individual instruction, enriched by the new media, and incorporating some type of systems approach, and (c) trained workers in the field of auto mechanics.
2. The study revealed that the competencies needed by prospective employees in each of the twelve job titles could be easily identified and described. The performance criteria for most of these competencies were identified through the literature and through the interviews with personnel from industry.
3. There were noteworthy difference in the training programs provided by industry for beginning automotive personnel.
4. The study showed that the competencies needed in the various job titles can be sequenced and that the materials, tools, and equipment needed for effective instruction are already available or can be readily developed. The instructional approaches and the evaluation procedures were dictated largely by the statements of competencies needed.
5. Some obvious but solvable problems were encountered. These problems included the refinement of individual instructional techniques, the provision of needed facilities and equipment, the establishment of appropriate evaluation procedures, and the determination of the appropriate administrative policies and procedures.

Conclusions.

The following conclusions are based on the instructional theory described in the literature and the interviews with personnel from industry:

1. More individualized instructional approaches utilizing performance objectives, which can be easily measured in terms of the expectations of industry, are feasible.
2. It is possible to develop a program which is sufficiently flexible that students may start and finish at different levels within the program.
3. A closed loop system approach, using performance objectives and individual instruction, appears to be the most logical and effective method for implementing the proposed curriculum model.
4. The effectiveness of the individual instruction techniques is dependent upon the extensive use of all available media. In the system proposed the instructor is really an environmental control expert.
5. The program must be under constant evaluation in terms of the desired student outcomes and should be revised periodically as new or better instructional approaches are identified.
6. The student evaluation procedures, which are described in this model, should be easier to apply and more meaningful than the common evaluative methods used within most traditional programs.
7. The success of the program will be highly dependent upon the quality of the staff and their willingness to assume an experimental and innovative role in implementing the program.

Order No. 71-2884, 187 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author	Envick	Robert	Merlyn
	(Last name)	(First name)	(Middle name)

Exact Title COMPETENCIES DESIRED FOR EMPLOYMENT IN THE PLASTICS INDUSTRY

Degree granted Ed. D, Date 1970 No. of pages in report 150

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

It was the primary purpose of this investigation to establish criteria for use in developing plastics education programs for industrial education which more fully meet the needs of the plastics industry. The study sought answers to the following questions:

1. What plastics processing experiences does the plastics industry consider valuable to persons seeking employment in the industry?
2. What data, of directional and guidance value, can be obtained for use in developing secondary and post secondary school plastics education curriculums.
3. To what extent is there agreement, on the part of the responding plastics processors, relative to the importance of specific pre-employment educational processing experiences.

A secondary purpose of this study was to seek information relative to the importance that the plastics industry places upon a potential employee's educational background. Data were sought concerning the importance of selected courses in general and industrial education at the high school level. Answers to the following questions were sought:

1. How important are the selected general and industrial education courses to an individual seeking employment in the industry?
2. Which areas of general and industrial education are considered most important to persons seeking employment in the plastics industry?
3. Does the plastics industry place a higher or a lower value on general education courses than on industrial education courses?

Information concerning how education can best keep up with future developments in the plastics industry was also sought.

Method of the Study

The method and the procedure utilized in this study were descriptive. An analysis of recent trade journals and magazines, textbooks and other studies in plastics education provided the information necessary to formulate the survey instrument. Questionnaire forms were mailed to 201 processors and converters. One hundred sixty-three, or 81 per cent, of the questionnaires were returned.

Conclusions

The following conclusions were drawn from the responses to the questionnaires:

1. The data reveal that the plastics industry finds it difficult to hire skilled employees. High school and vocational school graduates with plastics training are almost non-existent.
2. Data indicate that the plastics industry considers plastics education important to persons seeking employment in the industry. Persons with pre-employment plastics training would have a substantially better opportunity for employment in the industry than those who do not have pre-employment plastics training.
3. Considerable agreement was indicated among the processors, relative to the importance placed upon selected general and industrial education courses. A slightly higher value was placed on general education courses than on industrial education courses.
4. The importance of a plastics process should be determined by an analysis of the responses provided by the processors directly concerned with that activity, as well as the plastics industry as a whole.
5. Processes rated as "unimportant" by plastics processors may be considered "very important" to the successful operation of one specific plastics process, and thus should be included in the curriculum.
6. A direct and constant means of communication between education and industry must be established and cultivated so that plastics education programs can be developed to parallel and keep abreast of constant change.

Recommendations

1. Teacher education institutions should provide for a program with sufficient depth and content to allow undergraduate and graduate students to obtain a teaching emphasis in *industrial* plastics.
2. Industrial plastics teachers at all levels should constantly examine, evaluate, and reevaluate their curriculum offerings in plastics, to insure parallelism with contemporary industrial practices.
3. An industrial plastics education magazine or journal, written specifically for teacher educators and industrial education students, needs to be published in conjunction with the *Modern Plastics* magazine or possibly by the SPE-SPI Education Committee.
4. Departmental funds should be set aside for the purpose of allowing the *industrial* plastics teacher to take advantage of at least one plastics seminar and one conference or the annual convention each year.

Order No. 71-4171, 150 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Fazzini, Phillip, Albert
(Last name) (First name) (Middle name)

Exact Title A COMPARATIVE STUDY TO DETERMINE THE EFFICACY OF TWO INDUSTRIAL ARTS PROGRAM APPROACHES UPON PUPILS' ATTITUDES TOWARD MANUFACTURING INDUSTRY.

Degree granted Ph.D., Date 1970 No. of pages in report 204

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

A common objective of industrial arts programs, whether they be conventional or innovative, is that of fostering positive attitudes toward industry. However, there has been no research in the affective domain of learning to determine to what extent, if any, this objective is being achieved. The purposes of this study were twofold: to construct a valid and reliable scale to measure attitudes toward manufacturing industry, and to compare the attitudes of students enrolled in two industrial arts programs, one a conventional program and the other an innovative program, the IACP "World of Manufacturing, Industrial Technology II."

The scale was constructed by compiling a group of 137 statements covering five major aspects of manufacturing industry. Three types of validity, content, construct, and internal consistency, were established for the scale. A preliminary scale of 133 items resulted from this editing.

In order to establish reliability, a pilot study was conducted in three schools with programs comparable to those of the experiment schools. As a result of item analysis, 53 items with a total scale reliability of 0.864 were selected to comprise the final scale.

Factor analysis revealed four sub-scales within this major scale: government-management, automation-occupation, working conditions-production, and efficiency-profit. These sub-scales were used to probe the nature of the differences in attitudes among the treatment groups.

The final scale was administered to 128 eighth grade males in four Cincinnati schools. One school had a conventional industrial arts program, one an innovative program, and two, parochial schools which were used as a control group, had no industrial arts program at all. The scale was administered to the same group at the beginning of the school year in 1969 and at the end of the year in 1970. Eight concomitant variables were used as a statistical control. Those variables were grade point averages in language arts, mathematics, science, and social studies, intelligence quotient scores, socio-economic status, industrial arts cognitive achievement test scores, and pre-test attitude scores.

Analysis of the scale results revealed that differences in attitudes toward manufacturing industry did exist among the three treatment groups with the conventional group exhibiting the most positive attitudes, the control group next, and the innovative group last. All scores, however, were on the positive side of a continuum ranging through strongly disagree, disagree, uncertain, agree, and strongly agree. The major differences in attitudes were concentrated in the areas of automation-occupation and working conditions-production with the conventional group exhibiting the most positive scores.

The researcher concluded that the conventional program was more successful in fostering positive attitudes as determined by the scale items. However, a further analysis based on industrial arts cognition suggested that the conventional program may have taught attitudes which were pre-determined to be positive while the innovative program encouraged the students to formulate their own attitudes based upon the course content and class activities.

Order No. 71-7448, 204 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Fecik, John, Thomas
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION AND CLASSIFICATION OF GRAPHIC COMMUNICATION TECHNOLOGY.

Degree granted Ed.D., Date 1970 No. of pages in report 326

Granted by University of Maryland College Park, Maryland
(Name of institution) (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

Statement of the Problem. The problem of this study was to organize graphic communication in terms of the common elements of the technology of the graphic arts industry.

Statement of the Purpose. The basic purpose of this study was to provide information concerning the technology of the graphic communication industry. Inherent to this basic purpose were the following secondary purposes:

1. To identify the common elements of graphic communication technology as an outgrowth and development of the graphic arts industry.
2. To identify a structure of graphic communication technology in order to accomplish classification.
3. To provide a structure of classification to maintain comprehension and lessen ambiguity.

Procedure. The procedure of this study involved the identification of criteria to be considered when developing a structure. These criteria were the basis for analyzing an area of knowledge and classifying that knowledge in comprehensible terms.

An investigation of the literature provided the basis for tracing the evolution of certain types of communication and dividing it into graphic reproduction processes.

The review of the literature indicated the reproduction processes from which common elements were identified. These elements were then used to classify the various industrial techniques. Each of the common elements had its sub-levels which were also classified. The latter tended to be the various industrial techniques.

Conclusions. The data gathered and analyzed for this study suggest the following: (1) that graphic reproduction processes were acceptable as graphic means of communication; (2) there were six graphic reproduction processes: relief, intaglio, planography, screen process, electrostatic and holography; (3) comprehension for all graphic reproduction processes were clearly illustrated when they were ordered and classified as a paradigm or structure; and (4) the common elements for the graphic reproduction processes were: design, copy generation, image conversion, image carriers, reproduction devices and finishing operations.

From the developments of this study the following conclusions were drawn: that printing and graphic arts activities stress the graphic communication aspect of the reproduction processes; that a need existed for industry and education to agree on terminology; that a need existed for publication of materials by the industry for educational reference; that educators should avail themselves of materials and periodicals the industry does produce; and that educators must attempt to investigate new industrial techniques and processes and incorporate the findings into their programs.

Order No. 71-10,214, 326 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Forbes (Last name), Roy (First name), Haywood (Middle name)

Exact Title A TECHNIQUE FOR ANALYZING THE COSTS OF AN EDUCATIONAL PROGRAM BASED ON BEHAVIORAL STATED INSTRUCTIONAL OBJECTIVES.

Degree granted Ed.D., Date 1970 No. of pages in report 154

Granted by University of Massachusetts (Name of institution) Amherst, Massachusetts (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

A cost-effectiveness technique designed for implementation by local educational agencies is described and its applicability demonstrated. The technique is designed to provide decision-makers with analytical data pertaining to the: (1) cost of achieving program objectives, (2) overall effectiveness of a program in achieving its objectives, and (3) program effectiveness with subgroups of students.

The review of the literature introduces the reader to the jargon and concepts which are necessary for understanding the utility of cost-effectiveness analysis as a valuable decision-making tool. The concepts of cost-benefit and cost-effectiveness analysis are discussed. Cost-benefit analysis is defined as the comparison of the costs and financial benefits of a system. Cost-effectiveness analysis is defined as the comparison of costs and the measurable results of the operation of a system. Cost-benefit analysis is also defined as a subset of cost-effectiveness analysis, with the monetary benefit measurement being the distinguishing feature.

The four essential data elements of a cost-effectiveness analysis, i.e., program descriptions (including stated objectives), student characteristics, effectiveness measures, and costs, are described and data collection procedures discussed. Emphasis is placed on the need for including student characteristic data in the analysis to ensure that the decision-maker will be given information which not only provides him with data for selecting among alternatives on the basis of least cost and greatest effectiveness, but will also provide him with student characteristic data upon which to base humanistic cost-effectiveness decisions.

Activities required for implementing the cost-effectiveness technique are: (1) determine goals and objectives of the analysis, (2) list anticipated outcomes, (3) determine analytical techniques to be used, (4) identify general data requirements, (5) plan staff participation, (6) collect program descriptive data (including program objectives), (7) identify effectiveness measures, (8) identify or design and test effectiveness measurement instruments, (9) determine student characteristic data requirements, (10) determine cost data requirements, (11) identify data sources, (12) plan data collection, (13) data collection and categorization (including monitoring of data quality), (14) data analysis, and (15) data utilization for decision-making.

The applicability of the cost-effectiveness technique is demonstrated by describing the procedures used in collecting, categorizing, and analyzing data from Diman Regional Vocational-Technical High School, Fall River, Massachusetts. The application of one of the cost-effectiveness procedures used to analyze instructional alternatives is demonstrated using hypothetical data.

The results of the application of the described technique demonstrates the economic and operational feasibility and the acceptability of cost-effectiveness analysis by local educational agencies.

Order No. 71-9329, 154 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Fowler (Last name), Harmon (First name), R. (Middle name)

Exact Title SELECTED VARIABLES RELATED TO DIFFERENTIAL COSTS OF PROGRAMS IN COMMUNITY COLLEGES.

Degree granted Ed.D., Date 1970 No. of pages in report 142

Granted by The University of Florida (Name of institution) Gainesville, Florida (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine the differential costs of the liberal arts and vocational programs of selected community colleges, to determine the ratio of the unit cost per credit hour of each vocational program to the average, or mean, cost of the transfer curriculum and to identify variables which appeared to be related to the differential costs. The investigation was limited to a study of the unit costs of the educational programs in eight of the fifteen comprehensive community junior colleges included in the Community Junior College Finance Study, a satellite of the National Educational Finance Project.

The data were collected by a Project team during a visit to each institution. The name, position, and salary of each professional staff member, a class schedule for each term of the 1968-69 academic year, a college catalog and other documents containing descriptions of courses and curriculums offered, and a copy of the 1968-69 financial report with expenditures for current operation, were obtained.

The unit cost for each course was determined by allocating the total departmental, divisional and institutional expenses to the courses taught. The unit cost of each course in a specific program was summed to arrive at the total cost of educating a student in that program. Using the average cost per student in the liberal arts program, cost differentials (or ratios) for the vocational-technical programs were computed.

An analysis of the data received from the eight colleges revealed that there was a wide variance of curriculum costs within and among institutions. However, programs in business education, health related occupational education, technical education, and vocational education were consistently more expensive than the liberal arts program in the same institution.

The cost differentials calculated for the various programs showed that the occupational programs were generally greater than 1.00, the cost differential for liberal arts education. In order of increasing cost the six categories of programs ranked: liberal arts (1.00), business occupations (1.13), Social and Public Service (1.33), vocational (1.51), health related occupations (1.55) and technical education (1.65).

The program cost variables examined included cost per credit hour, average class enrollment, program level (i.e., freshman or sophomore) and the rate of depreciation of instructional equipment. Each variable was found to have a significant effect on unit costs. In addition, eight categories of current expenditures were examined to determine the percentage each contributed to the total current expenses of the college.

The variance in program costs and program requirements make it imperative to develop some systematic way of determining needs and apportioning local, state, and federal funds to meet these needs. The variation in unit costs reported in this study points out that any plan of financial support which is based on the allocation of a flat amount per pupil, without consideration of the difference in unit costs is an unfair plan.

The acceptance of the comprehensive junior college concept and the resulting growth and responsibility of these institutions make it imperative that an adequate means for financial support be developed. This includes an adjustment for cost differentials.

Order No. 71-16,782, 142 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Frye, Bill, J.
(Last name) (First name) (Middle name)

Exact Title AN ANALYSIS OF TEACHER EDUCATION INNOVATIONS WITH RECOMMENDATIONS FOR THEIR UTILIZATION IN THE PROFESSIONAL PREPARATION OF PROSPECTIVE INDUSTRIAL ARTS TEACHERS.

Degree granted Ph.D., Date 1971 No. of pages in report 279

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The broad curriculum development which occurred in mathematics and science during the 1950's was paralleled by a similar pattern of growth by industrial arts during the 1960's. The excitement generated by innovative curriculum efforts such as the Industrial Arts Curriculum Project at The Ohio State University attests to the success of these efforts. Several such research and development efforts have been concerned with the development of the technical or substantive component of industrial arts education. However, there have been no reported research and development efforts in the development and testing of educational technology in the professional segment of industrial arts teachers' education.

Teacher education has experienced an extensive expansion of knowledge and development during the past decade. However, little evidence exists that any efforts have been generated to adapt innovative teaching practices to industrial arts teacher preparation.

The major purpose of this study was to investigate and provide relevant information on the use of innovative practices by industrial arts teacher educators who teach professional courses, e.g., methodology, teaching skills, etc.. The study was designed to culminate in recommended procedures for the application of the innovations which were examined. The data for the development of the recommendations were obtained from a synthesis of information retrieved from practicing industrial arts teacher educators and from information gleaned from a review of related literature.

The initial phase of the study involved a survey of professors at 161 industrial arts teacher education institutions. This survey sought information from industrial arts faculties on the particular innovations which they were currently using in the professional experiences they provided for prospective industrial arts teachers. The findings of this survey revealed that only video tape recorders, micro-teaching, and field experience prior to student teaching was receiving substantial usage.

Based upon the findings of the preliminary survey, nine questionnaires were developed and forwarded to respondents to the preliminary survey. These questionnaires covered the following innovations:

- Video tape recorder
- Simulation
    - commercially available
    - own production
- Critical incident films
- Closed circuit television
- Interaction analysis
- Micro-teaching
    - with video tape recorder
    - without video tape recorder
- Field experience prior to student teaching

Industrial arts departments which participated in this phase of the investigation received from one to three of the above questionnaires, asking for specific procedures and recommendations associated with the use of the innovation.

Those innovations which received adequate feedback from the responding industrial arts teacher educators were treated by synthesizing the feedback with the findings of the review of the literature and developing recommendations for the application of the innovation. The limited use of innovations by industrial arts teacher educators prevented the development of recommendations from extending beyond a treatment of the video tape recorder, micro-teaching, field experience prior to student teaching, and a limited treatment of interaction analysis.

The evidence presented in this study indicated that the professional preparation of industrial arts teachers has not experienced the degree of innovation which the substantive portion has experienced. Clearly, emphasis needs to be placed upon the adaptation of teacher education innovations into the professional portion of prospective industrial arts teachers' preparation.

Order No. 71-27,471, 279 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Fuller (Last name), Mary (First name), Margaret (Middle name)

Exact Title A DESCRIPTIVE STUDY OF LEADERS IN PUBLIC SCHOOL VOCATIONAL EDUCATION IN CALIFORNIA.

Degree granted Ed.D., Date 1970 No. of pages in report 184

Granted by University of California (Name of institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

In this descriptive and exploratory study, the purpose was to record data on three dimensions which describe a group of full-time vocational education leaders in California public schools. Data collections on the same dimensions gathered in the future will reveal directions of change on the three dimensions.

The three dimensions of the study were (1) structure (or task-orientation) and consideration (or two-way interpersonal communication); (2) the verbalized patterns of attitudes derived from recorded responses obtained from interviews concerning problems, pressures, role, and selected concepts about leadership; and (3) personality measures of defensiveness and anxiety under stress.

Participants were 133 California public school vocational education leaders who were 72 per cent in age range from 40 to 59 years; 19 per cent had bachelor's degrees; 69 per cent had master's degrees; 83 per cent were Protestant; 92 per cent were male; 95 per cent were Caucasion.

Vocational educators as a group have attitudes and behavioral characteristics which would indicate that adoption of new and different forms of leader behavior and leadership training may be difficult. They are promoted from within and are given long and consistent leadership training/development programs. Most interpret highly structured relationships among people as being "inappropriately manipulative" rather than "sometimes appropriate." However, change may be facilitated as a result of their expressed concern about their lack of knowledge of their roles; about their need to increase effective interpersonal communication; and, they do have high consideration for others.

Vocational educators continue to be good operators of programs and the training and education about how to operate programs should continue. It was recommended, however, that opportunities be provided which would reward both increased knowledge and increased performance about their roles, and about the appropriate combinations and applications of democratic and autocratic leader/administrator behavior.

Order No. 71-620, 184 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Gettle, Karl, Eugene
(Last name) (First name) (Middle name)

Exact Title THE DETERMINATION AND COMPARISON OF THE TEACHER'S VERBAL BEHAVIOR INVOLVED IN THE TRADITIONAL AND MARYLAND PLAN APPROACHES OF TEACHING INDUSTRIAL ARTS IN SELECTED EIGHTH GRADE CLASSES OF MONTGOMER COUNTY, MARYLAND, DURING THE SCHOOL YEAR 1969-70.

Degree granted Ph.D., Date 1970 No. of pages in report 139

Granted by University of Maryland College Park, Maryland
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Statement of the Problem. The problem of this study was to determine and compare the classroom verbal interaction of teachers using the traditional and Maryland Plan approaches to the teaching of industrial arts.

Purpose of the Study. The purpose of this study was to provide information on the type of teacher verbal influence and the type of verbal interaction found in the classrooms of two different plans of teaching industrial arts.

Research Objectives. The research objectives for this study were to determine and compare for the traditional and Maryland Plan approaches to teaching industrial arts the following:

1. amount of time spent in each of the ten categories of the Flanders system of interaction analysis;
2. amount of teacher talk, student talk, and the teacher talk-student talk ratio;
3. Indirect-Direct and revised Indirect-Direct ratios;
4. patterns of classroom verbal interaction;
5. formal classroom verbal interaction to the laboratory verbal interaction;

Procedure. The procedure of this study was as follows:

1. identification of effective traditional and Maryland Plan teachers of industrial arts,
2. selection and use of the Flanders system of interaction analysis as the major instrument of the study,
3. observation, classification, and recording of the verbal interaction in the classrooms of the subjects into matrices,
4. analyses of the resulting matrices to determine the kind of influence and type of interaction found in the classrooms of the two methods of teaching.

Findings. The findings of the study indicated that the Maryland Plan teachers were more positive and less critical of their students, talked less, allowed their students to express themselves more freely, encouraged student participation, and used their authority less than the traditional teachers. The study also found that both groups of teachers placed heavy emphasis on course content, talked less in the laboratory than in the formal classroom, and were more directive in the formal classroom setting.

Conclusions. The major conclusions drawn from the findings of the study were:

1. Traditional teachers exhibit a direct influence pattern in their teaching.
2. Maryland Plan teachers exhibit an indirect influence pattern in their teaching.

Order No. 71-21,274, 139 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Gheen, William, Lloyd
(Last name) (First name) (Middle name)

Exact Title THE ADEQUACY OF CERTAIN CREATIVE CLASS METHODOLOGIES IN SELECTED TEXAS INDUSTRIAL ARTS TEACHER TRAINING INSTITUTIONS.

Degree granted Ed.D., Date 1970 No. of pages in report 122

Granted by Texas A&M University College Station, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The research objective was to determine the adequacy to which industrial educational practices at the college level encourage the fulfillment of a major professional *objective—the stimulation and development of creative abilities.* To evaluate achievement of the objective (1) an instrument (the Creative Expression Scale, CES) was developed to assess developmental opportunities for creativity within college classrooms, (2) a standard (Criterion Ratings) for creative expression in industrial education was established, (3) the in-class creative atmosphere (Status Ratings) was identified, and (4) statistical analyses of the differences between criterion and status values were calculated.

The CES was developed by (1) abstracting common methodologies conducive to creative development from the literature reviewed and (2) verifying content validity by submitting the CES to two juries for criticism and applying the Scale to a pilot study. The standard, or control, was established by submitting the CES to 37 industrial educators, geographically dispersed throughout the nation. These experts were asked to indicate the minimum acceptable level of performance for each of the 32 CES items. Mean ratings, derived from the 29 responses received, constituted the Criterion Ratings. Status Ratings were established from the 749 student responses to the CES. These ratings were extracted from 48 classes and 5 universities in Texas. The analysis of differences between criterion and status ratings was accomplished through the use of Dunnet's procedure whereby a series of treatment means could be compared to one control or standard.

The research hypothesis that, "there would be differences between the criterion ratings and the status ratings regarding the instructional methodologies which should and do exist for creative development" was verified and accepted as a statistically valid hypothesis. The testing of three null hypotheses supported this conclusion. Examination of the following null hypotheses was based on differences between criterion ratings and status ratings for:

Ho_1: laboratory and nonlaboratory type courses,
Ho_2: each particular institution, and
Ho_3: each individual teacher.

In nearly every instance, encouragement and opportunities for the development of creative abilities were significantly substandard. CES Mean differences for 18 of the 23 teachers involved were found to be highly significant (.01). It was also shown that nonlaboratory (theory) classes were more creatively oriented than were laboratory experiences. Therefore, it is not valid to assume, as is sometimes done, that because of a laboratory setting, industrial arts inherently stimulates creative development. This study provides further evidence of the fact that creative growth is achieved when it is nurtured, regardless of the setting, and is not achieved incidentially because of the setting.

The general conclusion of this research is that within the programs surveyed, industrial arts teachers are not being adequately trained to encourage and develop students' creative abilities. It is hypothesized that this same inadequacy exists generally throughout the profession, with few exceptions. Such being the case, it is meaningless to acclaim the objective "to develop creative abilities." Objectives serve as guidelines for performance. It is therefore suggested that one of two things be done, either correct the dearth in tutorial performance, or abrogate the objective. Because industry demands creative talents, it appears that the former is the more reasonable alternative.

Due to the incriminating evidence and the limited scope of this study, it is recommended that similar studies be conducted in other (or all) areas of the country to provide a more complete description of the creative atmosphere within the profession. It would also be fruitful to determine the correlation between those teachers who had received training in creative thinking or problem-solving and their subsequent stimulation of those abilities.

Order No. 71-8930, 122 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Glau, Jon, Edwin
(Last name) (First name) (Middle name)

Exact Title A STUDY OF TITLE I OF THE HIGHER EDUCATION FACILITIES ACT OF 1963 (P.L. 88-204) SECTION 103 GRANTS FOR PUBLIC COMMUNITY COLLEGES AND PUBLIC TECHNICAL INSTITUTES IN COLORADO, WYOMING, MONTANA, IDAHO, AND UTAH.

Degree granted Ph.D., Date 1970 No. of pages in report 192

Granted by University of Denver Denver, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to determine the impact the Higher Education Facilities Act of 1963 had on two year institutions in Region VIII. Twenty-one institutions were visited in the region and each president of the institution was interviewed.

A semi-structured interview technique was used to collect the necessary data to complete the study. A jury was used with a trial application of the semi-structured interview at three institutions not included in the study to insure validity.

The findings of the study indicated the act should be funded at a higher level. Also a regional plan should be used to determine the priorities for awarding HEFA funds. There were few administrative problems with the act. College administrators indicated positive responses toward the need for the act.

Order No. 71-8748, 192 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Goishi (Last name), Frank (First name), Hideo (Middle name)

Exact Title THE RELATIONSHIP OF ENROLLMENT SIZE OF AREA VOCATIONAL-TECHNICAL SCHOOLS IN MISSOURI TO PER STUDENT EXPENDITURES FOR VOCATIONAL EDUCAITON.

Degree granted Ed.D., Date 1970 No. of pages in report 148

Granted by Univerisity of Missouri (Name of institution) Columbia, Missouri (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

PURPOSE: The purpose of this study was to ascertain whether "economies of scale" exists for Missouri public area vocational-technical schools. This was, in effect, an attempt to estimate the net relationship between the enrollment size of an area vocational-technical school and the expenditures per student.

METHOD OF RESEARCH: This inquiry was directed at sixteen shared-time vocational-technical schools having permanent separate plant facilities, exclusive of community colleges, and in operation as of the fiscal year 1968-69. The analysis was confined to the regular day vocational-technical program offered to full-time high school day students on the secondary level exclusive of all MDTA programs and other specialized short-term programs.

Information for this study was obtained through personal interviews with the district superintendents, district business managers and/or directors of the sixteen area schools involved in the study. Additional sources of data were the various divisions of Missouri State Department of Education.

FINDINGS: A parabolic equation was used to investigate the relationship between size and cost for the area schools. The optimum school enrollment size was 398.2 students at a minimum average current expenditure per student of $404.63. When the enrollment size was increased from 162 to 398.2 students, there was a decrease of $126.69 average current expenditures per student. There was an increase of $79.17 per student when the enrollment size increased from 398.2 to 585 students.

A step-wise multiple regression model was utilized in addition to the parabolic regression equation due to the many determinants of school expenditures. Holding constant the means of average teacher's salary, tax levy and number of classes, the optimum school enrollment size was found to be 487.9 students at an average current cost per student of $423.77. The step-wise multiple regression revealed enrollment to be the best single predictor of average current expenditures per student. Enrollment, enrollment squared, average teacher's salary, tax levy, and number of classes were independent variables statistically significant in the regression equation. They accounted for approximately 81 per cent of the variance in average current operating expenditures per student among the area schools.

Visual assessment of the data and results of the statistical analysis confirmed the existence of economies of scale up to an optimum enrollment size. Diseconomies of scale prevailed when enrollment size exceeded the optimum.

CONCLUSIONS: The single most common factor found contributing to expenditures per student per year of a given course or curriculum was the number of students enrolled. Other major contributors to operating costs were the kinds and amounts of equipment utilized and administrative costs.

The theoretical constructs on which this study was based do have implications in public area vocational-technical schools in the state of Missouri. The evidence consistently showed that area vocational-technical schools experienced "economies of scale." The optimum scale, when expenditures were minimized, varied from 398.2 (parabola regression) to 487.9 (step-wise regression) students. The concept that a "diseconomies of scale" arises as size increased beyond the optimum found some support.

RECOMMENDATIONS: The area vocational-technical schools should start keeping adequate financial accounts as well as records that provide information relative to the total operation of the area school. Data should be kept for the operation of specific courses, curricula and total program. This also applies to equipment inventories which should be kept current (annual inventory) with all pertinent information listed. Policy makers and advisors, in ascertaining the feasibility of vocational school planning, should be cognizant of the apparent existence of "economies of scale" that is associated with providing vocational-technical education.

Order No. 71-8327, 148 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Graham, Gregory, Scott
(Last name) (First name) (Middle name)

Exact Title A TASK ANALYSIS OF THE BASIC METAL CASTING PROCESSES: AN INDUSTRIAL ANALYSIS PROJECT WITH CURRICULUM IMPLICATIONS FOR INDUSTRIAL ARTS IN SECONDARY AND HIGHER EDUCATION.

Degree granted Ed.D., Date 1971 No. of pages in report 122

Granted by University of California Los Angleles, California
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Introduction

This is a study in technology, an analysis of the technical aspects of founding; it deals specifically with a task analysis of the basic metal casting processes used in the Los Angeles market area. It is hoped that this analysis may prove beneficial in the formulation of courses of Industrial Arts in this phase of metal processing in both secondary and higher education.

Statement of the Problem

The problem was first to determine the basic metal casting processes used in the Los Angeles area and second to determine the tasks which are required to complete those processes. The latter was approached by collecting and analyzing the tasks relative to each casting process. This analysis enabled recommendation for inclusion of each task at a relevant educational level. Those particular levels included the seventh and eighth grades as exploratory, the ninth and tenth grades as introductory, and the eleventh and above as the advanced level.

Many basic tasks related to present-day casting processes do not appear particularly complex and apparently do not require expensive equipment. Because they are basic they may often relate to a variety of other occupational industries.

Procedures

In the initial stages of the study, an advisory committee was formed to select the list of basic processes and the lists of tasks necessary to complete the processes. After considerable discussion, those processes and task lists decided upon were compiled in a questionnaire.

A sequence of IBM cards was printed, numbered and sequence key punched from 1 to 192, one card for each respective task. The responses for the survey were marked on the mark sense cards and later key punched automatically, then fed to a computer for analysis.

Findings

The printout received from the cards lists each task, the frequency of response and the mode of responses for each task. A group of tasks was found for each process and categorized under each educational level: exploratory, grades 7-8; introductory, grades 9-10; and advanced, grades 11 and above. The percentage of the tasks shown by the data to be included in each process at each level was recorded in tabular form.

Conclusions

On the assumption that the data collected in the survey were accurat
it is concluded that a specific group of basic founding processes exists, wit
specific tasks necessary to complete these processes. These tasks have direc
implications for Industrial Arts courses at all levels.

The data derived from this study showed that (1) founding requires th
greatest emphasis at the introductory instructional level, where 55.6 per
cent of the tasks may be taught; (2) a majority of the founding tasks (58
percent), as they are performed in industry, require equipment costing i
the range of $100 to $700; (3) 18.3 percent of the tasks require equipmen
costing in excess of $700, while only 918 percent require no equipment. O
the basis of the two latter findings, in-depth financial considerations shoul
be given to the development of founding programs which will meet th
needs of Industrial Arts and the founding industry.

Recommendations

Based on the findings and conclusions of this study, it is recommende
that a founding course include the processes best suited for its educationa
level (see findings, *supra)*, as indicated in the tabulation below.

	Exploratory	*Introductory*	*Advance*
Green Sand	x	x	x
Skin Dried		x	x
No Bake		x	x
Baked Sand	x	x	x
Carbon Dioxide	x	x	x
Dielectric	x	x	x
Nonferrous Crucible	x	x	x
Ferrous Electric		x	x
Ferrous Cupola		x	x
Pouring	x	x	x
Investment	x	x	x
Plaster Molding	x	x	x
Shell Molding	x	x	x
Permanent Mold	x	x	x

Order No. 71-19,452, 122 page

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Gramberg (Last name), Merlyn (First name), Ludwig (Middle name)

Exact Title PROGRAM BUDGETING FOR INDUSTRIAL EDUCATION

Degree granted Ed.D., Date 1971 No. of pages in report 69

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose

The purpose of this study was to develop a model for program budgeting at the collegiate level in industrial education. The recommendations derived from this study provide a common program structure for budgeting in industrial education. This model could give meaningful direction to decision making for curriculum development.

Rationale for the Study

Expenditure of tax dollars has come under increased criticism by the public during the last few years as indicated by the increased number of bills passed in the legislatures of many states. This concern for the expenditure of tax dollars has caused a need for accountability in budgeting. A review of the literature for budgeting practices in collegiate industrial arts departments revealed that budgeting procedures varied greatly from institution to institution. Consequently this study dealt with development of a model for more effective justification and reporting of departmental industrial education budgets.

Procedures

The fiscal year of 1969-1970 was considered "a typical year" for student enrollment and budgetary purposes at the University of Northern Colorado. Course outlines for drafting and woodworking were analyzed and activities identified. Student and course costs were determined from these activities for drafting and woodworking by figuring the cost of student supplies, equipment, instruction, administration, secretarial help and office supplies. The program budget was developed from this analysis.

Findings

Student cost based on the activities of a course can be identified. From these student costs, the course cost and area cost can be figured.

Department financial records are necessary when determining cost for student supplies, administration, instruction and all other student cost.

It was found that the number of contact hours in a course compared to credit hours in a course had no significance in computing total course cost.

Equipment depreciation cost could be estimated when life expectancy was estimated, maintenance records were analyzed and student use identified. Yearly supply and equipment cost can be estimated for future years when student enrollment is known.

It is definitely indicated by this study that a program budget can be developed when expenditures are known about areas such as woodworking, metalworking, and drafting.

Conclusions

From the application of the model designed in this study, costs for industrial arts programs can be determined and budget projections established.

New program and course additions for a department can be reviewed with greater detail when the new program is subjected to the budget model.

The inclusion of depreciation costs in computation of the departmental budget is vital because, equipment necessary for course activities does become inoperative, unmaintainable and obsolete. The instructor's judgment is a human variable in arriving at the life expectancy of equipment in his respective laboratory.

Program budgeting is a step closer to financial accountability for collegiate departments because it itemizes the needs of each course according to its activities.

Order No. 71-26,814, 69 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Gray (Last name), Kenney (First name), Earl (Middle name)

Exact Title COMPETENCIES NEEDED BY PERSONNEL ENGAGED IN PROGRAM PLANNING IN STATE DIVISIONS OF VOCATIONAL-TECHNICAL EDUCATION.

Degree granted Ph.D., Date 1970 No. of pages in report 177

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

The central purpose of the study was to identify the competencies needed by personnel engaged in program planning within state divisions of vocational-technical education. The study was conducted to provide a basis for developing training programs to prepare personnel charged with carrying out the program planning process within state divisions of vocational-technical education.

As a basis for identifying competencies required in state-level program planning in vocational-technical education, it was desirable to select a conceptual framework of the planning process to serve as a guide for the study. After reviewing alternative planning processes, the "systems approach" to program planning developed by Walter M. Arnold was adopted as the conceptual base for study. The Arnold model consists of three planning levels including: (1) socioeconomic planning (as relates to vocational education); (2) vocational education program planning; and (3) vocational education resources planning. Each of the three planning levels requires the performance of six planning steps including the identification of (1) needs and objectives to be served, (2) capabilities and limitations, (3) specific problems, (4) problem elements—their relationships and requirements, (5) solution approaches, and (6) an operating system or plan. The procedure selected for identifying the competencies was that of obtaining the information directly from leading practitioners and scholars in the field of state-level program planning.

Twenty practitioners including seven chiefs of planning in state divisions of vocational education, seven state directors or assistant commissioners for vocational education, and six educational planners outside of state divisions of vocational education were asked to identify competencies needed by state level personnel charged with performing the planning steps of the Arnold planning model. Three successive mail questionnaires employing the Delphi technique were used to provide individual consideration and input followed by individual and group feedback of responses. Each competency identified was rated as to its importance to the planning process by the use of the following four point scale: 4 = Essential; 3 = Important; 2 = Useful; and 1 = Unimportant.

The primary findings of the study were the 147 competencies identified as needed by planning personnel in state divisions of vocational education. The overall mean rating for the 147 competencies was 3.36 (4 point rating scale). Included were 56 competencies in socioeconomic planning (as related to vocational education), 50 competencies in vocational education program planning, 36 in vocational education resources planning, and five other competencies.

In addition, respondents were receptive to the Arnold model as a framework for the identification of state-level planning competencies, and were willing to revise their ratings of competencies in light of evidence presented by other members of the Delphi panel.

Conclusions drawn from the conduct of the study and its findings were:

1. State-level planning in vocational and technical education utilizing the Arnold model involves specialized assignments requiring performance of specific planning competencies. The point of departure for the development of a training program for state-level planners should be the 147 competencies identified in this study.
2. State-level planning functions involve many levels of expertise and a broad range of responsibilities and activities.
3. Planners within state divisions of vocational education carry out a state role of integrating and synthesizing information from sources within and outside of the state division to provide information for decision-makers.
4. A myriad of public and private agencies are involved in offering programs of vocational education to serve a wide range of educational levels and socioeconomic backgrounds.
5. The Delphi technique is a tool of inquiry which may be used to gain information from a panel of experts.

Order No. 71-7465, 177 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Gray (Last name), Thomas (First name), Eli (Middle name)

Exact Title MANPOWER NEEDS AND THE ADOPTION OF TECHNOLOGICAL CHANGES AMONG DAILY NEWSPAPERS IN THE STATE OF TEXAS BY 1980.

Degree granted Ed.D., Date 1970 No. of pages in report 140

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study was conducted in cooperation with the Texas Daily Newspaper Association. The primary objectives were to determine the status of the newspaper publishing industry in Texas and to assess manpower needs and the adoption of technological changes by 1980. All the daily newspapers in the state were surveyed to gather the data necessary to the study. Seventy-one of the ninety-six newspaper plants participated in the study and were represented in the report of findings.

A questionnaire was designed to provide the information necessary for an assessment of the manpower needs and the adoption of technological changes among the daily newspapers. The following questions guided the design of the instrument and were incorporated into the questionnaire:

1. To what extent will daily newspapers in Texas adopt technological changes by 1980?
2. What printing processes are used, and what processes are expected to be used by 1980?
3. What are the manpower needs in the mechanical departments, and what is anticipated for the future?
4. What types of printing equipment will be utilized?
5. What level of educational attainment is desirable for persons entering the industry?
6. What will be the sources of manpower in the future?
7. What is the present status of the industry?

Summary of Major Findings

Among the major findings revealed by an analysis of the data were:

1. Utilization of the letterpress process by daily newspapers will decline from 44 newspapers to 25, while the offset process will increase from 27 to 42 newspapers.
2. A combination of the letterpress and offset processes, direct offset or letterset, will be adopted by 4 newspapers.
3. Increases were anticipated in press speed and page capacity, the use of electronic controls, and the number of newspapers doing 4-color process printing. Sixty-three per cent of the newspapers plan to purchase new presses or add to their existing press.
4. Stereotypes will be phased out by 54.7 per cent of the letterpress newspapers, and the number of newspapers using automatic plate processors will increase more than 100 per cent.
5. Camera departments will experience a gain in the number of departments using silver reclamation units, automatic film processors, and the number of departments doing their own color separations. Increases expected were 75 per cent, 57.7 per cent, and 43.5 per cent respectively.
6. The number of newspapers using hot metal typesetting machines will decline 52.1 per cent, and the number using strike-on machines will decline 63.6 per cent. Newspapers using phototypesetters will increase 58.1 per cent, and 50.7 per cent expect to use general purpose computers for typesetting functions by 1980.
7. A total of 91 job vacancies were listed for all the departments comprising a daily newspaper. Thirty-three vacancies were listed for mechanical departments, and 17 vacancies were listed for management personnel. The remainder were in other areas of plant operation.
8. By 1980, there will be a decline in the jobs of typesetting machine operator, compositor, stereotype superintendent, stereotyper, and electronic engraver. An overall decline of 0.3 per cent is expected in the mechanical departments in the future.
9. Seventy per cent of the respondents did not think a college degree was necessary for management personnel.
10. A 12th-grade education was considered to be the highest level of educational attainment necessary for mechanical department personnel.
11. In-plant training and apprenticeship training were considered to be the major sources of manpower in the future.
12. Sixty-six per cent of the newspapers plan to expand their facilities or build new ones.

Recommendations

The following were among the recommendations made as a result of the study:

1. Public school printing programs and the daily newspaper industry should work cooperatively to develop educational programs consistent with the needs of the industry.
2. Daily newspapers should reassess their position on the level of education necessary for entry into the industry in light of the demands of emerging technology.

Order No. 71-8931, 140 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Gunderson, Orley, Donald
(Last name) (First name) (Middle name)

Exact Title A FACTOR ANALYSIS OF PROFESSIONAL EDUCATION COMPETENCIES AND COMMUNITY COLLEGE INSTRUCTORS OF TRADE AND INDUSTRIAL EDUCATION.

Degree granted Ed.D., Date 1971 No. of pages in report 103

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purposes of the Study

The study had several purposes, the major one being to determine the common professional education competencies needed by community college instructors of trade and industrial education. Two other purposes of the study were to determine if differences existed among community colleges according to scores trade and industrial instructors assigned to each of 99 professional education competencies and determine if community college trade and industrial instructors resembled one another according to values given the 99 professional education competencies.

Procedures

A mail survey questionnaire was developed to collect data. The 99 item questionnaire was designed so that instructors could respond to the level of proficiency necessary for each competency in relation to their job. Their responses consisted of indicating whether no, slight, moderate, considerable or complete competency was needed.

A total of 40 community colleges, ten in each of four states (California, Colorado, Oregon, and Washington), were selected for the study. The sample of 160 instructors was obtained by randomly selecting four trade and industrial instructors from each of the community colleges identified in the population. Data were analyzed by utilizing analysis of variance and factor analytic techniques.

Selected Findings

A one-way classification analysis of variance revealed that, except for one competency, no differences existed among community colleges according to scores trade and industrial instructors assigned to each of 99 professional education competencies. Teacher educators may consider this community college similarity when developing or revising curricula.

The R-technique of factor analysis was used to identify common professional education competencies. A five-factor solution extracted 48 competencies that had factor loadings of ±.50 or higher. Four of the five factors extracted were identified as follows:

1. Factor I was a general factor with three interpretable sub-factors. Sub-factor 1a was named History, Philosophy, and Objectives; subfactor 1b was named Community Relations; and sub-factor 1c was named Professionalism and Student Relations.
2. Factor II was identified as Program Operation.
3. Factor III was summarized with the title of Measurement and Course Construction.
4. Factor IV was labeled Instructional Strategies.

Nine of the ten highest mean ranked professional education competencies in the study clustered under Factor IV, Instructional Strategies. The highest mean ranked competency in the study was *motivate students in the classroom, shop, and laboratory* and the lowest mean ranked competency in the study was *interpret the history of education*.

The Q-technique of factor analysis revealed that trade and industrial instructors resemble one another with regard to values assigned to professional education competencies. The high specificity of structure—one generated factor—strongly suggested that professional education needs of trade and industrial instructors are not as complex or diverse as had been widely assumed.

The study demonstrated that the development, administration, and factor analysis of a professional education competencies questionnaire does contribute to the identification and evaluation of common factors among different competencies and instructors. It is an effective and efficient method of obtaining much of the information essential for designing and developing curricula.

Order No. 71-24,007, 103 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Gysler (Last name), Randolph (First name), Louis (Middle name)

Exact Title A RATIONALE AND STRUCTURE FOR GRAPHIC COMMUNICATION TECHNOLOGY WITH IMPLICATIONS FOR INDUSTRIAL ARTS EDUCATION.

Degree granted Ph.D., Date 1971 No. of pages in report 460

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

The problem undertaken by the study consisted of three sequential and interrelated phases. The first phase of the study involved a research and development effort to formulate a rationale and structure for the body of knowledge to be contained in the graphic communication technology discipline. The methodology employed in solving that problem involved the analysis and synthesis of information and data retrieved through a review of graphic communication and industrial technology literature. The derived knowledges were structured into a theoretical framework, which was developed by the utilization and adaptation of the Industrial Arts Curriculum Project structure for industrial technology. The resulting major structural elements of the theoretical framework were that of the graphic communication technology practices of management, production, and personnel. The conceptual framework was then further detailed through specification, codification, and organization to produce the major conceptual graphic communication technology processes of administration, creation, generation, reproduction, and distribution.

The second phase of the study concerned the development of an instructional program to implement the graphic communication technology body of knowledge into the industrial technology (arts) program at the collegiate level. The methodology employed in solving that problem entailed a three step adaptation process. First, by the use of the reviewed instructional systems literature as a referent, an eight step instructional system plan and model were formulated.

Second, the eight step plan was employed to develop three alternate instructional programs including objectives and subject matter content. These alternative programs provided for the selection of a three, five, or eight course sequence of study.

Third, a detailed course of study, titled "Graphic Communication Typographical Design and Layout," was further developed as an example to illustrate the derivation and application of higher orders of objectives, subject matter selections and organizations, and the development of learning experiences and activities.

The third phase of the study concerned the assessment and revision of the body of knowledge contained in the developed rationale and structure for graphic communication technology. The methodology employed to solve that problem involved an assessment of the developed rationale and structure by a jury of seven experts from the graphic communication field and education profession. The jury was provided with the first draft of the rationale and structure, the typographical design course materials, and an assessment instrument.

The jury members responded by (1) assigning rank values to the assessment instrument statements, (2) writing suggestions and recommendations, and (3) providing corrections in the form of additions or deletions to the taxonometric lists within the first draft. These responses were used to make revisions in and to draw conclusions about the study.

As a result of the total research, development, and assessment activity utilized in the study, several findings have been derived:

1. The organization of the developed graphic communication technology body of knowledge into the major concepts of administration, creation, generation, reproduction, and distribution represent a logical and viable structure.

2. The structured body of knowledge for graphic communication technology is initially (1) appropriate for inclusion into industrial technology (arts) education, (2) adequate for instructional purposes, and (3) adaptable to social and technological change.

3. The practices and processes contained in the graphic communication technology body of knowledge are representative of those found in the print media portion of the graphic communication industry.

Order No. 71-27,477, 460 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hammond, Howard, Ray
(Last name) (First name) (Middle name)

Exact Title SELECTED CHARACTERISTICS OF NEW TRADE AND INDUSTRIAL TEACHERS IN THE NINETEEN MEMBER STATES OF THE NORTH CENTRAL ASSOCIATION.

Degree granted Ph.D., Date 1971 No. of pages in report 134

Granted by Iowa State University Ames, Iowa
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine selected characteristics of trade and industrial teachers who taught fulltime in preparatory programs at the postsecondary level who were new to their positions in 1967-68 and 1968-69. Characteristic information was obtained for teachers who served in the 19 member states of the North Central Association of Colleges and Secondary Schools.

Contact was made with key administrative personnel in each of the 19 states of the Association in order to request assistance in gathering the characteristic information. State supervisors of trade and industrial education and local directors of vocational-technical education cooperated by providing the needed data on computer print-out sheets, personnel data sheets and qualification forms.

Characteristic information was obtained for 663 teachers who taught in 42 different trade and industrial subject areas.

The findings revealed that the teachers ranged in age from 21 to 69 years. The average age of all teachers was 37.9 years.

It was found that the teachers ranged in the amount of trade experience from one year to 52 years. The average amount of trade experience of the 663 teachers was 10.9 years.

Approximately one-sixth of the teachers had no children; one-sixth had one child; one-third had two children and one-third had three children or more.

Ninety-one and seven tenths percent of the teachers were married.

Information concerning the formal education revealed that two out of every five teachers had less than junior/community college education; 16.1 percent had a master's degree; 28.7 percent had a bachelor's degree and 13.0 percent had completed junior/community college.

It was found that 481 or 72.5 percent of the teachers began teaching in 1967-68 or 1968-69 in the state where they had completed high school.

Analysis of the data indicated that a larger number of teachers had attended trade/technical schools than military or factory/industrial schools.

It was learned that 429 or 64.7 percent of the teachers came directly from industry when they accepted their new teaching positions at the postsecondary level in 1967-68 and 1968-69. The next largest group came from self-employment.

Approximately one in every three teachers received an annual salary between $8,000 and $8,999. Fewer than two percent of the teachers earned less than $6,000 and fewer than three percent earned more than $12,000.

An increase in the number of trade and industrial teachers is expected in the decade of the 70's. Knowledge of the selected characteristic information may:

1. Aid those who plan and execute teacher education programs.
2. Guide personnel who conduct recruitment activities.
3. Assist individuals who are involved in making decisions that affect certification.
4. Provide information to personnel in order that leadership and guidance can be rendered to the areas of high school and post high school vocational-technical education.

Order No. 71-26,857, 134 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hansen, Gary, Barker
(Last name) (First name) (Middle name)

Exact Title BRITAIN'S INDUSTRIAL TRAINING ACT: A CASE STUDY IN THE DEVELOPMENT OF PUBLIC MANPOWER POLICY.

Degree granted Ph.D., Date 1971 No. of pages in report 866

Granted by Cornell University Ithaca, New York
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

In March 1964 the Parliament of Great Britain passed the Industrial Training Act, which reorganized and restructured the nation's manpower training system. The passage of the Industrial Training Act and the events leading up thereto constitute one of the most important recent examples of government mobilization to meet national requirements for skilled manpower under conditions of rapid technological change.

This thesis studies the emergence of public manpower policy in Britain during the decade of the 1960's, using the Industrial Training Act as the primary focus.

The thesis is divided into three parts, each of which covers a significant phase in the chronological development of Britain's manpower training system. Part I provides an overview of Britain's overall manpower development framework. The major historical developments are briefly outlined in the areas of industrial (vocational) training, technical (vocational) education, and public manpower policies and programs. Part II is devoted to a detailed and systematic description of the events immediately preceding the passage of the Industrial Training Act. Part III provides a detailed and systematic analysis of the subsequent implementation of the Industrial Training Act during the first five years of operation (1964-1968). The two concluding chapters contain conclusions pertaining directly to the Industrial Training Act, and a general summary of Britain's emerging manpower policy with conclusions considered relevant for U. S. manpower policy.

The study attempts to answer two questions relative to Britain's new manpower training system created by the Industrial Training Act: (1) whether there was need for the creation of the elaborate system of Industrial Training Boards to correct the defects in the nation's system of industrial training; (2) whether there was need for the levy-grant mechanism to assist in the process. The conclusion of this study is that there was need for a radical reform of Britain's existing manpower training system, because of the archaic structure of the system, the retrograde attitudes of management and labor towards the role of training as part of human resource development, and the shortage of general training. It is further concluded that the institutional framework created for the modernization of Britain's manpower training system was soundly conceived and based upon the natural evolution of the nation's industrial relationships. Finally, given the deep-rooted and stubborn nature of the problems, it is felt that the levy-grant system has served a useful—even necessary—purpose as part of the educational process needed to modernize Britain's manpower training system in the period since 1964. While the levy-grant has served a useful purpose to this point, its complexity and fundamental defects suggest that it should not be retained in its present form for much longer—particularly the concept of redistributing training cost among firms.

In considering the lessons to be learned from the British experience in developing an active manpower policy during the past decade, three conclusions stand out: (1) The full range of manpower policies and programs should have been available for use when the need for a "shakeout" and "redeployment" of resources first became manifest. The drastic economic measures required during 1966 and 1967 might not have been necessary, or of reduced magnitude, if such had been the case. (2) The creation of a substantial number of agencies and programs with manpower dimensions has generated problems of coordination and rationalization which must be dealt with. (3) The Industrial Training Boards (ITBs) created by the Industrial Training Act offer a useful and potentially successful model for the development of an effective manpower training system in other nations.

Given the greater size and different traditions of the United States, it may be unrealistic for this nation to adopt the broader British concept of the Industrial Training Board. At least one British innovation in training, however, does have direct application here. Serious consideration should be given to the development in the United States of a professionally competent manpower training advisory service under public auspices to perform on a permanent basis functions similar to those now being performed by the British ITBs and Industrial Training Service. A well conceived manpower training service would contribute substantially to the improvement of manpower training in industry and to a more effective manpower policy in the United States.

Order No. 71-17,096, 866 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hansen (Last name), John (First name), Roger (Middle name)

Exact Title THE ACQUISITION OF TECHNOLOGY FOR DEVELOPMENT

Degree granted Ph.D., Date 1970 No. of pages in report 385

Granted by University of Colorado (Name of institution) Boulder, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Technology plays a vital role in economic development by increasing productivity and standards of living. Spontaneous diffusion was once the primary means of acquiring technology, but today its planned acquisition is becoming increasingly important. This thesis presents a framework for identifying and evaluating the factors critical to the successful acquisition of technology at lowest cost.

Acquiring technology is far more than a technological problem; it is crucially influenced by numerous economic and institutional parameters. Economic costs must be minimized at each stage, and necessary institutional inputs such as favorable laws and social acceptability must be present.

There are three basic stages in the acquisition of technology: (1) identification, (2) transfer, and (3) implementation.

At the first stage, cost is minimized by identifying the technology that will produce the desired volume of the good with a combination of factors which minimizes costs, given the factor endowment and the dynamic market structure. Labor intensive technologies are not necessarily best for countries with high unemployment; factor costs may be minimized by using capital intensive technologies.

The commonly used linear homogeneous production function with constant elasticity of substitution equal to one is probably unsatisfactory for identifying the relevant technology because of the heterogeneity of factors, varying productivities of technologies with different factor proportions, and varying productivities at different scales of production. More complex models must be used.

Because of the non-homogeneity of factors within general classes, one must analyze the available capital, natural resources, manpower, and entrepreneurship in terms of their specific qualities. These will affect the factors' productivity, actual abundance, and cost.

At the second stage—technology transfer—the major planning decisions concern the proper mix between borrowing and generating technology, the medium of transfer, and the organizational channel which will use the medium to effect the transfer.

The media of transfer—written material, electronic and graphic media, goods (including machinery), and people—may be evaluated in terms of cost and the degree of interaction they allow between the source and the user.

The organizational channels for transfer are business, government, and non-profit organizations. Business organizations transfer technology through the sale of goods (embodied technology), the sale of knowledge (disembodied technology), and by direct involvement in production. Governmental bodies, including regional and world-wide quasi-governmental organizations, either create an environment favorable to technology transfer through other channels or directly transfer it themselves. Non-profit organizations have long been involved in voluntary technical assistance efforts. Both government and non-profit organizations operate more on a grants than on an exchange basis, leaving to business the transfer efforts which can pay their own way. The best channel for a specific transfer project provides the necessary technology at the lowest economic and institutional cost within the existing environment.

The final stage—implementation—will be a joint product with the transfer if the transfer agent and the user are a common entity. If they are not, a strategy must be designed to minimize the costs of inducing the user to accept the new technology.

If the selection among alternatives at each stage is made so as to minimize economic and institutional costs, subject to the constraint of supplying the optimal technology, the acquisition strategy will result in the lowest possible cost of production.

Order No. 71-5894, 385 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hansen (Last name), Phillip (First name), Warren (Middle name)

Exact Title AN EVALUATION OF SELECTED WOODWORKING PROJECTS

Degree granted Ed.D., Date 1970 No. of pages in report 189

Granted by North Texas STate University (Name of institution) Denton, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The problem with which this investigation was concerned was that of determining the relevance of selected woodworking projects to the commonly accepted objectives of industrial arts woodworking.

The study had a twofold purpose. The first purpose was to develop a set of criteria that could be used effectively to evaluate projects that would enable a student to develop those skills and concepts emphasized in the goals and objectives of industrial arts. The second purpose was to evaluate the selected projects using the evaluative criteria developed for that purpose. A secondary purpose was to compile a convenient source book of projects for teachers after certain projects were evaluated.

The evaluative criteria were based on the objectives of industrial arts as determined by a review of the literature of industrial arts. The jury system was used to evaluate the selected projects based on these criteria.

Chapter I presented an introduction, the statement of the problem and purpose of the study, the background and significance of the study, the delimitations, the limitations, the basic assumptions, the procedure for collecting data, the selection of the jury and the procedure for treating the data. Chapter II, the survey of related literature, traced the objectives of industrial arts from the time of Ancient Greece to the present. Chapter III discussed the development of the evaluative criteria, the selection of the projects and the presentation of data pertaining to the evaluation of the projects. Chapter IV presented the findings, conclusions, inferences, and recommendations.

In a review of the literature of industrial arts, no research was found that specifically undertook the evaluation of woodworking projects by established evaluative criteria. It was found that many projects can be used at more than one level. Of the 100 projects, the jurors rated thirty-one projects as being suitable for use at the junior high school level, four of the projects were rated suitable for use at the high school level, twenty-three of the projects were rated suitable for use at both the junior high and high school levels, thirty-nine of the projects were rated suitable for use at the high school and college levels, and three projects were rated suitable for use at all three levels. Eleven projects were rated below average, thirty-two projects were rated good and fifty-seven projects were rated average. There were no projects rated excellent or poor.

Several inferences were drawn to explain the lack of good and excellent projects at the junior high school and high school levels. All of the jurors were college teachers and their expectations for the junior high and high school may have been too high. Also, there are many new products and processes used in industry today that may not have been involved in the selected projects.

It was recommended that those projects rated below average should not be used by industrial arts woodworking teachers, and of those projects rated average, the teacher using them should very carefully consider the students' needs and abilities. The thirty-two projects rated good, or projects similar to them, should be used extensively. Teachers of industrial arts woodworking should select projects that have been evaluated according to the objectives of industrial arts. It was further recommended that steps should be taken to make this study available to teachers of woodworking, and that future studies should be made to evaluate projects for other areas of industrial arts.

Order No. 71-8672, 189 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hanson, Robert, Richard
(Last name) (First name) (Middle name)

Exact Title EFFECTS OF PERIPHERAL STIMULI REDUCTION UPON LABORATORY LEARNING IN INDUSTRIAL ARTS

Degree granted Ph.D., Date 1970 No. of pages in report 178

Granted by Purdue University Lafayette, Indiana
(Name of institution) (City, State)

Where Available: Microfilm ( ) Microfish ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to investigate the effect of limiting peripheral stimuli and emphasizing essential elements in complex laboratory learning and to compare this with more traditional approaches to teaching this content. Two comparison treatments were implemented. The first was teacher developed and teacher taught; the second utilized the experimental materials supplemented by teacher direction and discussion.

The instructional content for the study was a measurement unit developed for use by junior high school subjects. This unit dealt with learning to read four measuring tools common to industrial arts programs. The experimental learning unit was developed by the investigator in four separate measurement booklets, each designed to instruct the learner to make accurate measurements on one of the four measurement tools: ruler, micrometer, vernier caliper, and printer's line gauge. A pilot study was implemented to refine the experimental booklets and the criterion test.

Intact seventh and eighth grade junior high school industrial arts classes served as subjects for this study. Subjects were assigned to treatment as follows: 68 to the experimental treatment condition, 35 to the teacher-taught comparison treatment, and 47 to the teacher-assisted experimental-material comparison treatment. The four separate investigator-developed multiple-choice criterion sub-tests were produced in booklet form. Following each sub-unit of instruction, the appropriate sub-test was administered to measure learner comprehension.

Three factors were combined to formulate the following analysis of variance statistical designs: teacher x treatment, treatment x level, and teacher x level. Combining sub-test scores for each individual provided mean total criterion test scores, which were used to test hypotheses.

Testing the research hypotheses provided the following results:

1. There was no statistically significant difference among mean criterion test scores of groups of subjects who received instruction by reading booklets that eliminate non-essential stimuli, by teachers using experimental booklets, or by the typical teacher taught approach.
2. There was no statistically significant difference between mean criterion test scores of groups of subjects at the seventh and eighth grade levels.
3. There was no statistically significant difference between mean criterion test scores of groups of subjects taught by two different teachers.
4. No statistically significant interaction effect appeared among comparisons of treatment conditions, teachers, and grade levels.

The results of this study suggest that learning presentations which limit peripheral stimuli and focus the attention of the learner upon the essential elements of the learning task are equivalent to more typical approaches to teaching complex technical content.

Order No. 71-2617, 178 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Harris, James, Gordon
(Last name) (First name) (Middle name)

Exact Title CURRICULA COSTS IN OREGON COMMUNITY COLLEGES

Degree granted Ph.D., Date 1970 No. of pages in report 79

Granted by University of Oregon Eugene, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Scope and Method

There are wide variations in public expenditures per student between community colleges and also between different curricula within these institutions. The purpose of this study is to examine both the relationship between size of the institution and unit-expenditures in several curricula and the primary source of variation within the components of total current expenditure per student.

Data for the study pertain to six Oregon community colleges for the 1966-67 academic year. The six institutions range in size from 670 to 5130 full-time-equivalent students. Each institution meets the following criteria: It is (1) a publicly supported institution in the State of Oregon, supervised by the State Department of Education and legally designated as a community college; (2) a comprehensive institution having program offerings which include both vocational-technical and lower division collegiate preparitory curricula; (3) in at least its third year of operation during 1967-68; (4) a candidate for accreditation or accredited by the Northwest Accreditation Association; and it is (5) financially and administratively stable.

Instructional expenditures for specific curricula are estimated by distributing teaching salaries across classes and then among students within each class. Instructional expenditure per student is the sum of per student expenditure for all classes in a curriculum. All instructional-supportive expenditures are distributed equally among full-time-equivalent students and then allocated in relation to number of credit hours in the curricula.

Findings and Implications

The vocational-technical curricula, with the exception of secretarial training, are more expensive than the lower division collegiate transfer curricula costed. This ranking is independent of institution size.

There is a strong inverse relationship between institution size and expenditure per student in each curricula. In three of five curricula the per student cost in the smallest institution is more than twice that of the largest institution. In a fourth, the smallest institution expenditure is 176% of that of the largest institution.

An inverse relationship between unit-expenditure and institution size exists in all of the components of total unit expenditures, but the instructional component is the primary source of variations between institutions.

Average instructional salary varies significantly between institutions and is the most important cause of differences in instructional cost per student.

All institutions should be able to decrease instructional expenditure per student in all curricula by increasing class size. Vocational-technical programs with small enrollments could achieve reductions in unit costs through wider use of service courses offered by other departments.

A number of studies have shown that there is little relationship between class size and student test performance. Institutions concerned with maintaining a close relationship between instructors and students may achieve both low unit costs and student-instructor contact through the use of some of the newer methodologies developed for teaching large numbers of students described in this study.

Order No. 71-10,728, 79 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Harris (Last name), Richard (First name), (Middle name)

Exact Title DEVELOPMENT OF A MODEL FOR A CURRICULUM EVALUATION INSTRUMENT IN VOCATIONAL-TECHNICAL PROGRAMS OF STUDY.

Degree granted Ph.D., Date 1970 No. of pages in report 167

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The acknowledged need for evaluation instruments especially designed for curriculum assessment in vocational-technical programs has provided the purpose for this study. This need, which is recognized by authoritative curriculum workers, has received a new high priority status in vocational-technical education by the legislative challenges included in the *Vocational Education Amendments of 1968.*

The literature indicates that a major problem in the assessment of curricula is due to the non-existence of measurement tools developed for this purpose. This investigation, therefore, was designed to delve into the problem in the following manner: (1) develop a conceptual model for a performance type curriculum evaluation instrument, (2) construct a sample instrument from the conceptual framework, and (3) submit the sample instrument to a limited field test.

An argumentative rationale was first established to provide the essential elements used in the conceptual model. These elements were derived from philosophical thought, organization and communication concepts, and recognized evaluation objectives (i.e., the evaluation objectives are aligned with the cognitive, affective, and psychomotor domains of learning). A construct of the model was then presented to illustrate the utilization of elements established by the argumentative rationale.

The model was then adapted to developing a framework for a sample instrument. The core structure of a federally certified curriculum for air-frame technicians as implemented in a technical institute served for the applied example. Data for preliminary validation of this sample were collected from a national panel of educational experts for this occupational group. These data were analyzed with specific regard to the common interpretability of statements describing specific performance tasks, general working traits, and positive socio-economic traits.

The finalized instrument was then submitted for a trial run to experienced master tradesmen of this occupational group, who are immediate supervisors of recent graduates of the selected curriculum.

The major findings of the study revealed that verbalized statements which describe specific performance tasks and working traits of an occupational group can be constructed to have an expressive degree of common interpretability among masters of that occupation. These statements, therefore, will provide a means to obtain performance assessments of a vocational-technical curriculum when developed and implemented from the criteria established in the conceptual model. The evidence used to support these findings failed to support the third major objective of the evaluation instrument, which was to assess the development of positive socio-economic traits.

Recommendations for constructing additional instruments in other occupational areas from the conceptual model are cited so that further authoritative evidence can be collected to reinforce or refute the conclusions of this study. It is also recommended that a Taxonomy of Educational Objectives for the psychomotor domain of learning be established to permit a common organizational structure for specific performance tasks.

Order No. 71-7476, 167 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Harris (Last name), Robert (First name), Cole (Middle name)

Exact Title THE CLASSIFICATION OF ACHIEVEMENT TEST ITEMS BY COGNITIVE FACTOR DEFINITIONS FOR SELECTED STANDARDIZED TRADE TESTS.

Degree granted Ed.D., Date 1970 No. of pages in report 164

Granted by University of Illinois (Name of institution) Urbana-Champaign, Illinois (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Problem

Educational achievement tests are traditionally designed to reflect technical content. A review of the literature revealed evidence that demonstrates a consistent overlap between intelligence, aptitude, and achievement tests. It was proposed, therefore, that the variance in performance could better be accounted for by cognitive abilities, than by the traditional content classification.

Purpose

The purpose of the study was to investigate the concept that developed cognitive abilities or factors provide an explanation for measured differences in achievement test performance.

Procedures

Two standardized tests, the *Achievement Test for Automotive Mechanics* (AMP-Auto) and *Achievement Test for Machinist* (AMP-Mach), were administered to S's of seven states completing programs in corresponding curriculum. An analysis of these tests provided a concurrent replication of the study. The test samples included 515, AMP-Auto, and 316, AMP-Mach, post secondary S's.

The five hypotheses analyzed for each test used achievement test items classified according to cognitive factor definitions. Items of both tests were classified by three subject matter raters according to six cognitive factor categories, and one category suggested by differential aptitude test literature. The cognitive factor categories, developed by French and others of Education Testing Service, were selected by writing committees of the two tests as relevant to their curricula. Prior to the classification process, raters were trained through the use of investigator developed materials: Rater Instruction Booklet, and Description of the Factors Booklet. Only items receiving rater agreement were used in the statistical analysis. Rater classification agreement attained respective levels of 69 per cent, AMP-Auto, and 80 per cent, AMP-Mach

Findings

A principle axis factor analysis with varimax rotation of 130 x 130 AMP-Auto item intercorrelation matrix produced seven tentatively identified factors: Knowledge of Air-Conditioning, Mechanical Knowledge, Knowledge of Carburetion, General Reasoning, and Knowledge of Power Trains. Similar statistical analysis of the AMP-Mach produced eight tentatively identified factors: Number Facility, Mechanical Knowledge, Visualization, Mechanical Reasoning, General Reasoning, Technical Vocabulary (Verbal Comprehension), Knowledge of Cutting Processes, and Knowledge of Measurement Applications.

The raters' subjective classification of items by cognitive factor definitions was supported empirically. Agreement of five cognitive factors, tested using Chi-Square, ranged in level of significance from $p < .10$ to $p < .001$.

Cognitive factor subtests using items subjectively classified by raters produced Kuder-Richardson 20 reliabilities ranging from .47 to .96. The low r was produced by a subtest containing only five items.

An analysis of the independence of content and cognitive factor item classifications was not possible because of a limited number of items in several cognitive factor subtests.

The anticipated lower mean subtest intercorrelation for cognitive factors was not supported. The difference in direction of r's was opposite than hypothesized. However, the multiple factor nature made it impossible to construct "pure" factor subtests of many test items and undoubtedly increased correlations.

Conclusions

The tentative identification of three cognitive factors for the AMP-Auto and six cognitive factors for the AMP-Mach provides an explanation that achievement test performance is due in part to the measurement of differentially developed cognitive abilities. The cognitive factor concept provides a reliable means of interpreting test performance in terms of developed abilities without loss of the meaningful use of content subtest scores. The concept may be particularly useful as a means of interpreting and measuring specific curricular objectives. The substantiated ability of subject matter raters to subjectively classify test items by cognitive factor definitions and behavior descriptions provides confidence in the usefulness of the concept.

Order No. 71-5116, 164 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hauser, Roger, Emmett
(Last name) (First name) (Middle name)

Exact Title AN ANALYSIS OF INDUSTRIAL TECHNOLOGY CURRICULUM AND ITS SIGNIFICANCE TO THE CASTING INDUSTRY.

Degree granted. Ed.D., Date 1971 No. of pages in report 226

Granted by University of Northern Colorado Greeley, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to determine to what extent industrial technology programs were training technologists in light of the needs of the casting industry. Two major objectives of the study were as follows:

1. To determine the type of curriculum needed in industrial technology to best prepare individuals who will enter the casting industry.
2. To study industrial technology programs as they are related to metalcasting.

Procedures

The data for this study were obtained by the use of opinionaires sent to selected plant managers of casting industries and to casting instructors at schools offering a four-year technology degree. Information for the opinionaire was provided by analysis of recent casting periodicals, textbooks on metalcasting, and college catalogs of four-year technology departments. The opinionaire was critiqued by 12 doctoral students in industrial education and by a jury of 8 professional foundrymen. Opinionaire forms were mailed to 141 plant managers and to 50 casting instructors. One hundred forty-four, or 75.4 per cent usable opinionaires were returned. Data from the plant managers and casting instructors were compared by frequency of responses, percentage of responses, and chi square statistical values.

Findings

Plant managers and casting instructors agreed that a definite need exists for industrial technologists in the casting industry. Data from plant managers revealed one to ten industrial technologists were employed in their plants and the majority expressed increasing need from 1971 to 1975. Middle management positions most likely filled by industrial technologists were quality control, production management, and plant superintendent.

Most industrial technology departments had one to ten graduates employed by the casting industry in 1970. Material and material processing and metallurgical technology were emphasis areas most likely to be taken by casting students.

The area of technical courses is the most important area for a student who anticipates employment in the casting industry. The importance of specific courses, instructional units, and equipment were determined. On all items where there was a significant chi square disagreement, casting instructors consistently rated these items higher than did plant managers.

Of sixty-one courses rated by both plant managers and casting instructors, the following received the highest percentage of responses: Physical Metallurgy, Principles of Foundry Operations, Quality Control, and General Chemistry. Of the fifty-one laboratory instructional units rated by both plant managers and casting instructors, the following received the highest percentage of responses: gating systems, methods of temperature measurement, proper pouring techniques, and risering of castings. Of forty-five equipment items rated by both plant managers and casting instructors, the following received the highest percentage of responses: Brinell hardness tester, metallurgical microscope, safety equipment, and sand muller.

Conclusions

The following conclusions were drawn from the data received:

1. A need exists for more interaction between casting instructors and personnel of casting industries.
2. Schools should recognize the need in casting industries for industrial technologists and also recognize what positions are in demand and plan their programs to meet these needs.
3. Instructors of casting technology should have previous experience in the metalcasting industry and should return to industry periodically to update their knowledge.
4. Industrial and American Foundrymen Society sponsored seminars and programs are advantageous to casting instructors.
5. The content of casting curricula in industrial technology needs improving to reflect what is being practiced in modern industry.
6. Industrial advisory councils should serve an advisory capacity for industrial technology curricular development.
7. Industrial internship is a vital and necessary part of an industrial technology curriculum.
8. The areas of technical, business administration, and communication in that order should be given the most emphasis in the training of an industrial technologist for the casting industry. The physical science area should be studied by curriculum specialists to determine its importance in the casting curriculum.

Recommendations for Further Study

In connection with this study two related problems presented themselves which suggest study.

1. A follow-up study of industrial technology graduates who enter the casting industry to determine their opinions on specific aspects of industrial technology programs.
2. A study of casting industries to determine their willingness to participate in work experience programs and to determine the most desirable positions in casting industries in which to place students.

Order No. 71-26,816, 226 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Heilman, Casmer, Franklin
(Last name) (First name) (Middle name)

Exact Title A TASK ANALYSIS OF SELECTED LEADERS IN VOCATIONAL EDUCATION.

Degree granted Ed.D., Date 1970 No. of pages in report 95

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this research was directed toward an examination of personnel resources in vocational education. More particularly, the study attempted to determine contributions made by personnel, to assess the procedures and processes utilized in making these contributions, and to identify strengths that need to be developed in future personnel.

Answers to three questions were sought: 1) What do selected leaders in vocational education do? 2) What common tasks are performed by personnel at different position levels? 3) How are these tasks performed? One null hypothesis was formulated to test the findings: There are no differences between tasks performed by personnel at the secondary, community college, state department of education and teacher education levels.

Sixty-four individuals from 28 states who held leadership positions were selected. Specific tasks performed by each were collected over a period of five weeks for a total of 181 man-days.

Reported tasks were assigned to 14 major functional categories. Total time devoted to each category (by position level) and the process utilized in performing each task were determined.

Analysis of data revealed a significant difference between the four position levels and therefore, rejected the hypothesis. The greatest similarity in rank order correlation existed between secondary and teacher education positions and the least similarity appeared between secondary and community college positions. Community college positions were decidedly different from the other three position levels.

Personnel development, researching, planning, and supervising were the highest ranking categories when all positions were compared. Lowest ranking task categories were promoting, consulting, budgeting and financing, policy formulating, and guidance and counseling in that order.

Processes utilized to accomplish tasks indicated that 66.8 percent of the time spent by the individuals was devoted to the four kinds of social interactions: group, face-to-face, written and telephone interaction. Group and face-to-face interactions accounted for 52.7 percent of the total time and 79.3 percent of the total interactions.

Order No. 70-27,030, 95 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Herberts (Last name), Roger (First name), Edward (Middle name)

Exact Title SIMPLIFIED VERSUS COMPLEX DRAWINGS AS REPRESENTATIONS OF REAL OBJECTS AT SELECTED GR+RADE LEVELS.

Degree granted Ed.D., Date 1971 No. of pages in report 106

Granted by University of Illinois (Name of institution) Urbana-Champaign, Illinois (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Drafting is a graphic language, a medium for the transmission of ideas or information. Graphic representations of objects which employ elaborate delineation and sometimes unnecessary details may serve only to confuse the reader and make interpretation of the transmitted information more difficult. One purpose of this study was to examine the question of whether or not simplified multiview line drawings describe the physical attributes of an object as effectively as more complex multiview line drawings of the same object. Another purpose of the study was to determine if a difference existed in the ability of students at various grade levels to interpret multiview drawings of different complexities.

The 135 subjects participating in the study were all male and naive to the extent that they had had no prior drafting training or experience. Forty-five subjects were selected to represent each of three different educational levels; namely, junior high school, senior high school and college.

The research design consisted of a series of three 3 x 3 analyses of variance. The two independent variables in each analysis were the grade level of the subjects and the complexity of a multiview drawing representing a real object. The dependent variable was the amount of time required by each subject to identify correctly the object represented by a drawing and located in an array of similar but definably different objects. The series of analyses resulted by increasing the complexity of the object represented by the drawings in each respective analysis.

Nine hypotheses, three per analysis, were formulated and evaluated statistically at the .05 level of significance. Three hypotheses were developed to ascertain if multiview drawings composed with varying amounts of delineation, detail, etc. differed in their ability to represent objects having two, four or six definable attributes, respectively. Three hypotheses stated that subject groups, representing different grade levels, would not differ in their ability to interpret multiview drawings of objects having two, four or six definable attributes. Three hypotheses dealt with the interactive effects of the subject's grade level and the complexity of a multiview drawing of an object having two, four or six definable attributes, respectively.

The nine hypotheses, stated in the null form, were all supported by the data indicating that the statistical findings were not significant in any case. The study revealed that objects which contained two, four or six definable attributes, other than shape or form, can be represented equally effectively with simple, medium or complex multiview line drawings. The data implied that drafting principles and techniques can be simplified without hindering the effectiveness of the drawing.

The results of the study indicated that subjects, representing three educational grade levels and naive to drafting, did not differ in their ability to interpret multiview line drawings. When junior high, senior high and college students received the same instructions and directions, each group performed equally well. The data did not reveal that subjects from a given grade level would perform better using a drawing of a given complexity level.

Although not statistically evaluated, the findings of the study appeared to have an efficiency implication for the teaching of drafting. The data tended to support the reasoning that if the complexity of a drawing has no significant effect on a student's performance then the time and energy of both students and teachers may be conserved by using a simplified drawing which is equally effective as a complex drawing for communicative purposes.

Order No. 71-21,139, 106 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Herr, James, F.
(Last name) (First name) (Middle name)

Exact Title ILLUSTRATED INSTRUCTION SHEETS AS A SUPPLEMENT TO TEACHING MANIPULATIVE OPERATIONS IN GRAPHIC ARTS VIA VIDEO TAPED CLOSED CIRCUIT TELEVISION.

Degree granted Ed.D, Date 1970 No. of pages in report 280

Granted by University of Missouri Columbia, Missouri
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

PURPOSE: The purpose of this investigation was to ascertain the relative effectiveness of illustrated and non-illustrated procedure sheets when used as a supplement to demonstrations of manipulative processes via television. More specifically, the study attempted to ascertain the extent to which the two instruction sheets affected (1) informational achievement; (2) manipulative achievement; (3) retention of technical information; (4) attitude; (5) student time required to complete laboratory activities; and (6) amount of assistance required by laboratory supervisors. The data were further analyzed to ascertain any differences which occurred between the high and low ability students.

METHOD OF RESEARCH: In this two-group controlled experiment, each group consisted of three sections of 137-117 Introduction to Graphic Arts at Stout State University, Menomonie, Wisconsin scheduled during the third quarter of the second semester of 1969-1970. A total of sixty-eight students were included in the analysis of results. The basic procedure followed during the experiment was to randomly assign treatments to groups, pretest to verify equivalence, apply the treatment, and test to ascertain treatment effect.

The control variables employed to establish equivalency were scholastic aptitude, prior knowledge of graphic arts, and attitude toward the use of self-instructional materials. Since no significant differences were found in the two groups with respect to the three control variables, the directional hypotheses were tested using the two way analysis of variance technique.

The criterion variable of informational achievement required the use of teacher-constructed examinations. These examinations were administered at the mid-term of the course and at the conclusion of the course. The former examination was then re-administered on the day before the end of the experimental period to obtain a measure on the retention of technical information over the first one-half of the course.

A measure of the students' attitude toward the use of self-instructional materials was secured on the day before the end of the experimental period. Manipulative performance rating was ascertained by a panel of three judges using a rating scale developed during the pilot study.

FINDINGS AND CONCLUSIONS: The illustrated instruction sheets used to supplement CCTV demonstrations was significantly superior to the use of non-illustrated sheets with regard to manipulative performance.

The group utilizing the illustrated instruction sheet required less laboratory time as well as less laboratory assistance than the non-illustrated group.

Analysis of the student ability sub-groups revealed that the high ability students within treatments achieved at a significantly greater level in informational achievement and retention as well as had a significantly more positive attitude toward graphic arts than low ability students.

With respect to manipulative performance, illustrated instruction sheets may be expected to result in a better quality of work, in less time and with less laboratory supervision than the use of non-illustrated sheets.

Since both treatments used to supplement CCTV demonstrations proved to be effective in promoting the informational achievement, attitude and retention of high ability students, it may be concluded that self-instructional materials contribute to the performance of high ability students in graphic arts.

Although the group exposed to illustrated instruction sheets evidenced a slightly higher mean score on informational achievement, retention, and attitude than the group exposed to non-illustrated sheets, neither of the instruction sheets investigated in the study appears to be more effective than the other in terms of these variables. Thus, the study failed to reveal a significantly superior approach for promoting greater achievement, retention and attitude in graphic arts.

Order No. 71-3337, 280 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hillsman (Last name), Sally (First name), Turnbull (Middle name)

Exact Title ENTRY INTO THE LABOR MARKET: THE PREPARATION AND JOB PLACEMENT OF NEGRO AND WHITE VOCATIONAL HIGH SCHOOL GRADUATES.

Degree granted Ph.D., Date 1970 No. of pages in report 544

Granted by Columbia University (Name of institution) New York, New York (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study is concerned with the role of educational institutions as mechanisms of labor market selection, in particular the role of the vocational high school in structuring the careers of terminal graduates. The research focuses on those differences in the economic achievement of minority and majority youth which are generated and sustained by educational institutions in their capacity as gatekeepers to the economy.

In this study, the Social Security Administration work history records of the 1956 to 1963 graduates of a unit industry metropolitan vocational high school are analyzed, together with collateral school data and informant interviews with key school administrators, teachers, and selected students. The research first contrasts the work histories (earnings, rates of unemployment, types of employer, etc.) of 1,950 Negro, Puerto Rican, and white graduates who were trained in the same vocational high school and in the same apparel trades. Second, the research attempts to account for some of the striking differences which appear by examining the processes in the school and labor market by which the students are inducted into the labor market.

Analysis of Social Security work histories demonstrates a clear picture of racial inequality, despite equal educational attainment. When education and specific curriculum of training are held constant, there are substantial differences in the earnings and job placement of minority and majority graduates. These differences appear early in the graduates' careers—at entry into the labor market directly from high school—and continue throughout the follow-up period of seven and a half years. Thus it is demonstrated that equal formal education and equal skill preparation do not eliminate economic inequality. It is concluded that bringing the educational level of minority groups up to that of the majority will not *by itself* reduce the inequality between them or remove all blocks to equal economic opportunity for minority youth.

The ineffectiveness of this often suggested approach to alleviating poverty and inequality is because inequality is partly generated and sustained by the educational system itself. Primarily by the qualitative analysis of interview materials, this study goes on to directly relate differences in entry earnings and job placement to processes within the high school which are connected to that institution's function as a selector of talent for the labor market. The qualitative analysis focuses on (1) the processes by which students of different racial backgrounds are differentially placed within the hierarchy of curriculum tracks; (2) the different experiences minority and majority students have in the school and their impact on student motivations and aspirations; (3) finally, the processes by which students are differentially placed in jobs after graduation.

The research finds that race is a critical determinant of selection outcomes at each stage of the student's high school career. This occurs despite the norms of equality and selection by merit which are held throughout the school. The decisions at each stage of the process are also cumulative so that early decisions structure later ones in the same negative or positive direction. These influences negatively affect the careers of minority students because there is a pervasive dis-esteem for their racial status throughout the value climate of the school. Finally, the processes of selection are self-fulfilling. On the micro level, expectations of racial differences within the school encourage actual racial differences among students. On the macro level, expectations located in the larger society influence screening and selection within the school which then directly contribute to perpetuating existing economic and social hierarchies. By mechanisms such as these located in the educational-job complex, the stratification system is maintained.

Order No. 71-17,504, 544 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hoerner, Harry, John
(Last name) (First name) (Middle name)

Exact Title THE EFFECTS OF ON-THE JOB COUNSELING ON EMPLOYERS' RATING AND JOB SATISFACTION OF PERSONS TRAINED IN SELECTED OKLAHOMA MDTA CLASSES DURING 1967-1968.

Degree granted Ed.D, Date 1969 No. of pages in report 138

Granted by Oklahoma State University Stillwater, Oklahoma
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Scope and Method of Study: The central purpose of the study was to investigate the effects of counseling upon subjects from selected Oklahoma MDTA classes operating in 1967-68. The effects of counseling were measured by (1) subjects' job satisfaction scores, (2) employee performance scores, (3) training efficiency and (4) general employability.

The basic design was experimental. Subjects included in the study were sampled randomly and collated as treatment and control groups, thereby constituting the two independent case samples. Two counselors, one of whom was the researcher, each counseled with subjects from four separate selected Manpower classes. Counselor Number One had 30 subjects in both the treatment and control groups, while Counselor Number Two had 25 subjects in two comparable groups. A total of 110 Manpower trained subjects were included in the study's selected population.

Counselors attempted to bring about an improvement in counselees' job satisfaction level and other selected dependent variables through administering client-centered counseling. Counselors attempted to hold four to seven counseling sessions with each subject in the treatment group. Data, used to analyze certain dependent variables and factors of an ecologic and demographic nature, were collected upon treatment group subjects following an experimental period of counseling treatment. Those in the control group had similar data collected upon them at a time comparable to that collected upon their Manpower classmates.

Findings and Conclusions: Nine dependent variables were tested for significance at the .05 level of probability in order to detect the possible influence of the counseling treatment upon administered subjects. Significant differences, in favor of the counseling treatment, were found for (1) status as to bonafide and legitimate jobs held, (2) the number of weeks elapsing prior to the initial employment of subjects in bonafide and legitimate jobs and (3) the percent of time that subjects held bonafide and legitimate jobs during the experimental period. No significant difference was discovered between subjects counseled and those not counseled with regard to (1) job satisfaction score, (2) employee performance rating score, (3) training-related jobs held by subjects, (4) earnings received from bonafide and legitimate jobs during the experimental period, (5) earnings received from all income during the experimental period and (6) earnings received from bonafide and legitimate jobs during the last week of the experimental period.

It was found that both counselors worked similarly in administering counseling services. However, their assigned group subjects were observed to be different, although not tested for significance, with regard to (1) race, (2) percent of time trainees attended Manpower training classes, (3) ownership of automobiles and availability to telephones and (4) years of out-of-state employment. Subjects, by counselor groups, were observed to be quite similar with regard to (1) area of residence, (2) marital status, (3) number of dependents, (4) status as to bonafide and legitimate jobs held and (5) status as to training-related jobs held.

A conclusion reached was that, within limitations imposed by the study, the counseling administered did effect subjects' ability to obtain and hold jobs. However, counseling apparently seemed to have little, if any, measurable effect upon how subjects felt about jobs they held, nor ratings given by their employers. Little or no effect on variables centered around incomes was noted. Discovery of possible counseling effects, not obtained, yet expected, may have been rendered unattainable by such restrictions as the minimal opportunities subjects experienced in obtaining training-related jobs, as well as jobs in general. Furthermore, the researcher recognized variables often centered around deeply ingrained personal attitudes and widely varying aspirations of subjects that would perhaps take years of counseling services to accomplish measurable changes of this nature. Obviously, the few months covered in the experimental period proved inadequate.

Order No. 70-21,407, 138 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hoenes (Last name), Ronald (First name), LeChard (Middle name)

Exact Title SCHOOL-COMMUNITY RELATIONS: THE EFFECTIVENESS OF FOUR TECHNIQUES OF DISSEMINATING INFORMATION ABOUT A SCHOOL'S INDUSTRIAL ARTS PROGRAM TO ITS COMMUNITY.

Degree granted Ph.D., Date 1970 No. of pages in report 230

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Three-quarters of American public secondary schools have industrial arts programs, and in many junior high schools industrial arts is a requirement for all males. Although educators agree that it is important to keep the public informed about educational programs, such as industrial arts, there has been a lack of research-based evidence on "how to inform the public effectively."

This study had the purpose to investigate and to provide evidence relevant to the effectiveness of four techniques for disseminating information about a school's industrial arts program to the parents of a school's student body. These four techniques are: 1) a coordinated tape-slide program, 2) an exhibit, 3) a newspaper article, and 4) a newsletter article.

In this study survey instruments were used to acquire the data. A pretest was given to a randomly chosen sample of parents before the release of information about the industrial arts program. After the release of information about the industrial arts program through each information dissemination technique being investigated, a posttest was given to a randomly chosen sample of parents to acquire facts about their perception of and knowledge about the industrial arts program.

The Kolmogorov-Smirnov Two-Sample Test was used to obtain a Chi Square value for the response distributions between each of two samples being compared. Thirty-three such comparisons were made between and among the pretest sample and each of four posttest samples.

There were five questions to be answered by this study. Question one: Are there differences in parents' understanding of a school's industrial arts program before and after they view a coordinated tape-slide series? The answer was affirmative. The parents viewing the slides demonstrated a more favorable perception of and greater knowledge about the program.

Question two: Are there differences in parents' understanding of a school's industrial arts program before and after they view an exhibit of student work? The answer was affirmative. Parents who viewed the exhibit demonstrated a more favorable perception of the program. However, there was no difference in knowledge about the program between those who did and did not view the exhibit.

Question three: Are there differences in parents' understanding of a school's industrial arts program before and after they read an article about the program in the community newspaper. The answer was affirmative. Parents who read the article demonstrated a more favorable perception of and greater knowledge about the program.

Question four: Are there differences in parents' understanding of a school's industrial arts program before and after they read about the program in a school newsletter? The answer was affirmative. Parents who read the article demonstrated a more favorable perception of the program. However, no differences were found with respect to their knowledge about the program.

Question five: Are there differences between and among the four techniques being investigated regarding their effectiveness to disseminate information about an industrial arts program to the parents? Parents viewing the slides were found to have a more favorable perception of the program when compared with the other three techniques. They also demonstrated greater knowledge about the program than did those in the exhibit and newsletter samples. Parents who read the newspaper article were found to have greater knowledge about the program than those viewing the exhibit. Those viewing the exhibit were found to have a more favorable perception of the program than those reading the newsletter article.

The evidence presented in this study supports the assertion that a coordinated tape-slide series, an exhibit, a newspaper article, and a newsletter article are all effective techniques for presenting information about an industrial arts program to parents of a school's student body. However, effectiveness varies for each of the four techniques.

Order No. 71-7483, 230 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Homisak, William, __________
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE INDUSTRIAL-TECHNICAL EDUCATION PROVIDED THROUGH THE CONTINUING EDUCATION AND COMMUNITY SERVICE PROGRAMS IN THE PENNSYLVANIA COMMUNITY COLLEGES.

Degree granted Ed.D., Date 1970 No. of pages in report 145

Granted by The Pennsylvania State University University Park, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine the operation, administration and future program planning of the continuing education and community service programs in the 12 Pennsylvania community colleges. In addition, 120 industries were surveyed to determine how these programs were meeting the perceived part-time training needs of these sampled production industries.

All 12 of the community colleges were surveyed, with 10 sampled production industries selected from the county in which each college was located. A total of 120 production industries were selected from 8 major categories of manufacturers of durable goods. Two separate questionnaires were used to collect the data. Each questionnaire was divided into two parts. Part I—A general profile of the colleges and industries, to establish the colleges' implementation, administration and future program plans, and to determine industry's present training programs, future part-time educational needs and their support of these continuing education programs. Part II—A taxonomy of industrial-technical related courses, auxiliary industrial-technical courses and technical courses—principles and practices, provided through the continuing education programs and viewed by industry as essential for their production employees.

A descriptive analysis was made of the general profiles, with a comparison of the frequency of course offerings and course needs and a percentage of the needs met in each of the area colleges. A composite percentage of the needs met of each course category by all colleges and a total percentage of all needs met was presented.

Some significant findings were: (1) The continuing education programs of the community colleges were providing 42 percent of all the courses that the sampled industries considered essential for their production workers. The major needs met were in the categories of communications and mathematics. (2) Industry's impression of the community colleges indicated that they were making an effort to understand and provide the industrial-technical training needed, although emphasis should be placed on basic theories and operative skills. (3) More than 50 percent of the industries would solicit the help of the community colleges in meeting these training needs and would work cooperatively with them by providing technical information, instructors, equipment and whatever help they could contribute. (4) Both groups agreed that future course needs would be based upon technological change. Students who attended classes did so for the purpose of upgrading, with approximately 50 percent interested in industrial degree programs. (5) Many industries paid the tuition fees of their employees and would also consider the establishment of special contract training programs with the community colleges. (6) Eighty-six percent of the colleges were approached by industry to provide continuing education programs for them, while 80 percent of the industries viewed the community colleges as a contributing factor to their growth. (7) No one administrative organization or plan of implementation of continuing programs was utilized in the community colleges, while all expressed some reorganization in this area and future expansion of programs.

The most important conclusions of this study were: (1) That a wide variety of course offerings was made available to the people employed in industry through continuing education. (2) That industry's impression of the community colleges was that they were making an effort to understand and provide the industrial-technical training needed. (3) That the colleges were offering 42 percent of all the courses that the industries considered essential and should be made available to their industrial-technical production employees.

Order No. 71-6316, 145 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author House, Elaine, Wadlund
(Last name) (First name) (Middle name)

Exact Title SELECTED FACTORS RELATING TO THE WORK CYCLE OF VOCATIONAL SKILL SUBJECT TEACHERS.

Degree granted Ed.D., Date 1970 No. of pages in report 128

Granted by Rutgers University New Brunswick, New Jersey
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study compared and contrasted the work cycle and occupational mobility of persons who had become—or aspired to be—vocational skill subject teachers. The focus was upon inter- and intragenerational mobility, and a comparison of occupational status with that of key reference persons—i.e. father, wife and oldest brother. Emphasis was placed upon the socio-economic status level of the subjects' job or occupation at various points in the work cycle in relation to the occupational status of the key reference persons. The data also provided sufficient information to generate a "profile" of the trade and industrial teacher, and to compare his educational attainment with that of the key reference persons.

The sample consisted of: 202 trade and industrial teachers in New Jersey; 35 persons enrolled in the pre-service vocational teacher certification program at Rutgers; and 45 persons who had dropped out of the pre-service program. All subjects in the sample were males.

Four hypotheses were tested. The first two concerned the difference between the occupational status of subjects' first and last job in trade or industry and that of their fathers. Hypotheses 3 and 4 tested the difference in occupational status of subjects at three stages in their work cycle.

Occupational status was coded using Duncan's Socio-Economic Index. The statistical test employed was analysis of variance. No significant differences were found between groups in respect to inter- or intragenerational mobility.

Six questions were asked. They related to: (a) intragenerational mobility; (b) occupational status of wife and oldest brother; and (c) educational attainment.

Conclusions

The skilled worker who has become—or aspires to be—a vocational teacher is not the typical "skilled worker" who appears in the literature. Teaching attracts workers who have been both inter- and intragenerationally mobile. Although they inherited their fathers' occupational status, they steadily gained in status while employed in trade or industry.

For this sample of skilled workers, the influence of the father as a reference person diminished after the first job. Later in the work cycle, the importance of the wife and oldest brother as reference persons was noted.

Not until he became a teacher, which represented a significant gain in status, did the trade and industrial teacher attain a status which exceeded that of his wife or oldest brother. The pre-service dropout had, in his last job in trade or industry, exceeded the status level of these reference persons.

In all respects—occupational mobility, status and educational attainment—the pre-service dropout compared favorably with the trade and industrial teacher. His withdrawal from the program represented a loss to vocational education.

Recommendations

For further research:

1. The role of the wife, oldest brother, and friends (especially vocational teachers) as reference persons.
2. The failure of pre-service teachers to secure teaching employment.
3. The reason(s) for the pre-service dropouts' withdrawal from the program.
4. Detailed information concerning the last job in trade or industry. Foremen, supervisors and persons self-employed in the building or service trades tend to be scaled into the middle range of Duncan's Index. Yet self-employment or supervisory jobs may be stages in the work cycle leading to eventual employment as a teacher.

To strengthen current programs:

1. Each pre-service teacher should be sponsored by a local vocational school district.
2. Pre-service teachers should be encouraged to join professional organizations.
3. Pre-service teachers should be followed up on a regular basis.
4. Vocational teachers should be actively and formally engaged in the recruitment of teacher candidates.
5. Opportunities to become a vocational teacher should be publicized in professional journals.

Order No. 71-480, 128 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hullman, Don, Herman
(Last name) (First name) (Middle name)

Exact Title A STUDY OF RECRUITMENT TECHNIQUES WHICH INFLUENCE STUDENT SELECTION OF VOCATIONAL-TECHNICAL EDUCATION.

Degree granted Ed.D., Date 1971 No. of pages in report 157

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of this study was to determine the exposure and influence of recruitment techniques and influential sources and factors which influenced student selection of vocational-technical education.

Procedures

The data for this study were obtained through the use of a student questionnaire. The questionnaire was administered to a total of 578 community college respondents within the urban, suburban and rural geographical areas in the State of Oregon.

The Chi-square and t-Test statistics were used in statistically analyzing the data in reference to the classification of students—high school, transfer and out-of-school students within the urban, suburban and rural geographical areas.

Conclusions

From the results of this study, the following conclusions and implications can be drawn:

1. Career days, scheduling a conference with the community college guidance counselor and brochures, flyers, leaflets and booklets were ranked first, second and third respectively in all geographical areas as the three most influential recruitment techniques.
2. The influence of other recruitment techniques were dependent upon the classification of students within each geographical area. A closer analysis of these recruitment techniques may assist college personnel in providing more effective recruitment programs.
3. It can be concluded that high school students had significantly greater overall contact and influence of recruitment techniques, and transfer and out-of-school students were significantly lower.
4. Parents, guardian or relatives and the community college guidance counselor were ranked first and second respectively by the classification of students in all geographical areas as being the most influential in offering personal advice.
5. In general, the transfer and out-of-school students ranked the employer, employment agency, welfare agency and rehabilitation agency as being higher among influential sources as compared to the total composite profile.
6. The parents, guardian or relatives were ranked first as an influential source, however ranked sixth in providing recruitment information to the respective classifications of students. It would be advantageous to provide more recruitment information to the parents, guardian or relatives, considering their influence with the respective classifications of students.
7. It can be concluded that there is a direct correlation between the quantity of recruitment information disseminated by influential sources and their relative influence upon the respective classifications of students.
8. The rural composite profile provided a larger quantity of recruitment information as compared to the total composite profile.
9. The influential sources which ranked first and second respectively by all geographical areas and classifications of students were recruitment information mailed by community college and recruitment information disseminated by the community college guidance counselor and faculty.

Recommendations

It is recommended that the findings of this study be utilized by community college personnel of vocational-technical education in planning and developing effective recruitment programs related to the different classifications of students.

It is specifically recommended that community college personnel in vocational-technical education critically analyze the findings of this study in relationship to the recruitment techniques, recruitment informational dissemination sources and influential sources which were influential in recruiting, and adapt these influential factors to their present recruitment programs.

Order No. 71-5427, 157 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hunter, Robert, Frederick
(Last name) (First name) (Middle name)

Exact Title DEVELOPMENT OF A MODEL FOR PREPARING AND DEVELOPING A CURRICULUM FOR THE TECHNICAL INSTITUTE (ENGINEERING TECHNOLOGY) AT THE UNIVERSITY OF NEBRASKA AT OMAHA.

Degree granted Ed.D., Date 1970 No. of pages in report 197

Granted by The University of Nebraska Omaha, Nebraska
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to identify the types and level of mathematics, science, laboratory experience and engineering knowledge and methods that are needed to prepare the engineering technician to work efficiently as an engineering aid. The position was taken by the author that specific information about technical employment from a group of past and current students (both graduates and non-graduates) of the Technical Institute at the University of Nebraska at Omaha would aid in the improvement of the curriculum.

Three primary means were used to collect the data sought:

1. A mailed questionnaire to students and former students.
2. The selection of a sample of the surveyed population to visit their place of employment and talk with their immediate job supervisor.
3. An observation and visitation with the surveyed employee on the job.

The results of this study are in the form of a model which presents goals for preparing the Technical Institute's curriculum. Also there are recommendations to the Technical Institute at the University of Nebraska at Omaha based on the data collected and their analysis, as well as the model of goals for curriculum preparation, information from job supervisors, authorities in Technical Institutes, review of the literature and the conclusions reached.

Some of the major conclusions and recommendations are:

1. The Technical Institute at the University of Nebraska at Omaha should develop a Bachelor of Science program to serve better the needs of the Omaha area.
2. Students in the Technical Institute programs desire more laboratory courses and more personal involvement in class operations.
3. There is a need to stress relevance and practicality of course content consistent with local industrial conditions since more than eighty per cent of the Technical Institute students are employed locally.
4. Possible new programs such as computer technology and electrical mechanical technology are needed.

Order No. 71-3641, 197 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Husung (Last name), William (First name), T. (Middle name)

Exact Title A STUDY OF THE DRAFTING CURRICULA IN CALIFORNIA COMMUNITY COLLEGES BASED ON TASK ANALYSIS.

Degree granted Ed. D., Date 1970 No. of pages in report 177

Granted by University of California (Name of institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purposes

The purposes of this study were to determine:

1. The effects of automation on the needs of industry for draftsmen with general versus specialized training.
2. The curricular revisions in vocational drafting programs in California community colleges to meet the needs of industry.

Procedures and Populations

A survey of the 87 public two-year colleges in California was made to determine the types of drafting programs offered and to learn the effects of automation on the drafting curricula. On the basis of this survey, 20 colleges were selected for visits and 45 instructors were interviewed to determine the course content and emphasis in their drafting programs.

Interviews with 219 draftsmen and 58 drafting supervisors in industrial and professional offices were conducted to learn the needs of draftsmen in the five major areas of drafting: architecture, civil, electronics, mechanical and structural engineering. A check list of 177 job skills and tasks was used in the interviews of draftsmen and instructors to compare the needs of draftsmen as they might vary in the major fields and to compare their needs with the skills and knowledges emphasized by drafting instructors.

Results

Of the 87 public junior colleges in California, 81 responded to the survey, and 67 reported some type of vocational drafting program. The drafting programs offered by the colleges in order of the frequency named were: general drafting 53, architectural drafting 45, mechanical drafting 44, electronics drafting 31, civil drafting 20, and structural drafting 15. Nine other specialized drafting options were reported, but none of them by more than one college.

The draftsmen in industry indicated that they had very little need for skills or knowledge regarding computer-aided drafting at that time, and if any training was needed in the future, it would probably best be done on the job to suit the types of equipment used by each company. Drafting personnel recommended flexibility at least to the point of being able to work in two related fields as electronic and mechanical drafting or architectural and structural drafting, so that beginning draftsmen could work for the same company in other fields when work loads required re-assignments of personnel.

Automation has had little influence on the needs for draftsmen. Good draftsmen are still very much in demand, and will be needed for many years to come. In some fields the automated devices are taking over some of the tedious detail drafting previously done by engineers. Improved equipment for reproducing drawings has reduced the need for tracing and copywork. As a result, future draftsmen will be doing work of a higher level.

The draftsmen and supervisors suggested curriculum revisions for the vocational drafting programs that would include more emphasis on:

1. Related technologies with shop work or laboratory demonstrations of industrial practices.
2. Instruction in drafting techniques according to industrial standards and professional practices.
3. Professional and office practices in documentation.
4. Mathematics—generally through trigonometry.

The draftsmens' specific recommendations expressed as the skills needed and tasks performed in the five major fields were tabulated as an aid to instructors desiring to compare the needs of draftsmen in the various fields for the improvement of their own instruction.

Order No. 71-3824, 177 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hyder (Last name), Carroll (First name), Ray (Middle name)

Exact Title AN ASSESSMENT OF THE EFFECTIVENESS OF SUMMER WORKSHOPS FOR TRAINING TEACHERS TO USE THE MATERIALS OF THE INDUSTRIAL ARTS CURRICULUM PROJECT.

Degree granted Ph.D., Date 1971 No. of pages in report 210

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The basic purpose of the study was to assess the effectiveness of the Industrial Arts Curriculum Project (IACP) Summer Workshops for Construction Teachers, and to collect data and information to further enhance the effectiveness of such programs in the future. A part of the assessment and a second purpose of the study was to determine the job satisfaction of teachers completing the training program.

The population for the study consisted of all teacher trainees participating in the 1970 IACP Summer Workshops for Construction Teachers. From this population, a purposive sample was selected consisting of all teacher trainees (N = 154) from nine of the workshops. The nine workshops were: California State College Long Beach, Eastern Michigan University, Florida State University, Illinois State University, Kansas State College of Pittsburg, The Ohio State University (two workshops), State University of New York College at Oswego, and Trenton State College.

The study utilized the results of three instruments to assess the effectiveness of the workshops. These instruments were: an achievement test, the *Minnesota Satisfaction Questionnaire* (MSQ), and a participant follow-up questionnaire.

Data collection and treatment were divided into three categories. These were: subject matter achievement, job satisfaction, and participant follow-up.

The research design for the IACP content and process achievement segment of the study utilized a separate sample, pre-test—post-test design without randomization. The criterion group was comprised of eleven experienced IACP construction teachers. The experimental group was composed of 154 participants enrolled in the sampled IACP workshops.

The job satisfaction segment utilized the same design used for controlling the subject matter achievement phase. The experimental group was composed of those participants in the workshops who taught the IACP construction course during the subsequent academic year, 1970-71. The criterion group was comprised of those industrial arts teachers who participated in the workshops but did not teach the IACP construction course subsequent to the workshop.

The follow-up questionnaire was mailed to participants approximately nine months after the workshop. The follow-up questionnaire was responded to by 127 former participants. This represented an 82.5 percent response.

Fisher's t-test for determining difference between means was utilized to test three hypotheses concerning the achievement of participants, and three hypotheses concerning participants' job satisfaction. The results and findings were: a significant increase was found in teachers' knowledge of IACP content and process; the criterion group of experienced IACP teachers scored significantly higher on the achievement pre-test than did the experimental trainee group; the mean achievement pre-test score of the criterion group of experienced IACP teachers was significantly higher than the mean score of the experimental trainee group; there was no significant difference (both pre- and post-test) in job satisfaction between the trainee group that elected to teach the IACP program and those who did not.

The following were among the conclusions drawn: the IACP workshops were relatively successful in achieving their expressed purpose and objectives; workshops appear to be an effective strategy for developing teachers' knowledge and understanding of IACP content and process; even though the participants were generally satisfied with their present job and although over 60 percent of the participants in the workshops did not teach the IACP program during the 1970-71 academic year, the workshops were successful in attracting teachers who will eventually teach the IACP program; and, according to the participants, the organization and overall operation of the 1970 workshops appeared to be a relatively effective method of presenting the IACP construction program.

Order No. 71-27,487, 210 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Inaba (Last name), Lawrence (First name), Akio (Middle name)

Exact Title THE DEVELOPMENT OF A FRAMEWORK FOR AND A MODEL TEACHING-LEARNING SYSTEM IN ELECTRONICS TECHNOLOGY FOR THE ELEMENTARY SCHOOL.

Degree granted Ph. D., Date 1970 No. of pages in report 332

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of the study was twofold: (1) To develop a rationale and a structure of knowledge that may be bases for an elementary school instructional system in electronics technology within a broader framework of technology, and (2) To design and develop an instructional packaged system in electronics technology that may be used as a model to encourage the development of other similar packaged systems.

In order to identify the context of electronics technology and to logically structure its body of knowledge, the following questions were used as guidelines for investigation and discussion: What is the context of technology? What is industrial technology? What is communications technology? What is the interface between industrial technology and communications technology? What is the relationship between electricity and electronics? What is the relationship between electronics technology and physical science? What is the context of electronics technology? Through extensive investigation and discussion of these questions, the context of electronics technology was identified as that part of the total field of electronics which is concerned mainly with the study of the application of the operational principles within industrial technology which relate to the research and development, production, and utilization of electronic devices.

After the context of industrial technology was adequately defined and structured for the purpose of this study, the body of knowledge for electronics technology was then identified and structured under five broad operational concepts for instructional purposes. The operational concepts were identified as: (1) conducting electrical phenomena, (2) converting waveforms, (3) oscillating, (4) amplifying, and (5) switching.

The second part of this study included the design and development of a prototype of the instructional system, alternative approaches were first considered before the following four decisions were made: (1) In formulating objectives, the instructional objectives were determined at the project level, and task analysis was used to determine the instructional objectives. (2) In selecting learning experiences, ideas from Ausubel's work relating to the subsumption theory were incorporated in the design of the instructional system. The identified major concepts of electronics technology were then selected and organized around a framework of key electronic devices and technical terms used as "organizers" to amplify the concept being taught. (3) In organizing learning experiences, the instructional system was designed to include a complete package since most elementary school teachers lack adequate training in electronic concepts. The instructional system was also developed to enhance the learning opportunity of all students in the elementary school by utilizing the concept of the spiral curriculum. A varied media approach was also utilized in presenting the lessons in electronics technology. (4) Evaluation would be used to judge the success of the instructional system by providing specific information that would allow the curriculum developer to work necessary changes in the instructional objectives and activities to strengthen the total instructional program.

The construction of the instructional system included: a teacher's guide, a textbook, a student workbook, and transparencies, a vocabulary list, and resource guides. Although a framework of the total instructional packaged system in electronics technology for grades one through six was structured and developed, the prototype of the instructional system included in this study represents the total teaching-learning system geared for only the sixth-grade level.

Recommendations for field testing of the instructional system were made. Further recommendations for evaluation and refinement of the total program also were made. It was hoped that through this study other similar studies will evolve to further curriculum development in industrial arts education at the elementary school level.

Order No. 70-26,306, 332 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Ives (Last name), Qua y (First name), DeWitt (Middle name)

Exact Title AN ANALYSIS OF A DIE MAKER'S PROBLEM SOLVING COMPETENCIES.

Degree granted Ed.D., Date 1971 No. of pages in report 147

Granted by University of California (Name of institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Statement of the Problem

This study is an analysis of the problem solving competencies in one occupation, die making. A definite imperative of our time is the need for better ways to economically and efficiently solve problems in industry and society. The fundamental thesis of this study is that optimal educational endeavor and its counterpart, operational activities, rests upon the discovery and use of problem solving competencies for each specific occupation or selected types of work within a specific occupation. This study was undertaken because there is a definite need to know the problem solving competencies of a die maker and because such an analysis does not now exist.

Method and Procedure

The pilot study closely resembles the form of research known as the case study and it is related to a specific type of investigation known as an activity analysis. This study is a job analysis, which aims at man-job relationships.

The procedure employed was to investigate the activities of an atypical die maker, a leader as such, who is outstanding in his field of work. A projective technique was used to capture incidents and events to test a specific hypothesis. The underlying and controlling purpose of the study was to investigate the die maker's problem solving competencies which result in operational behavior.

Findings

The working hypotheses, *There are no basic differences in the various types of mental competencies required for the development of mental thought forms and for the development of mental patterns of action necessary for the performance of a die making operation,* was discarded because of basic differences. The alternate hypothesis, *If there are basic differences in the various mental competencies required for the development of mental thought forms and for the development of mental patterns of action necessary to the performance of a die making operation there must be some common attributes mutually related to these specific ends,* was also discarded. The questions posed at the outset of the study and those that arose during the analysis resulted in the findings which will now be partially stated as a series of statements answering the questions of the study.

Primary problem solving competencies in die making are in the areas of pressworking, machining, and inspection and assembly (Structure).
Secondary problem solving competencies in die making appear to be creative, technical, or logical (Function).
Visualization is the essential method or type of basic competency used in die making (Method).
Creative visualization is used in designing and focuses upon the concept of critical path.
Technical visualization is used in construction and focuses upon the concept of sequential ordered spatial relationships.
Logical visualization is used in inspection and assembly and uses scientific principles to develop optimality.
Die making is a process of problem solving using visualization to regulate and control mental thought forms, mental action sequences, and intuitive feelings as separate entities.

Order No. 71-19,454, 147 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Johnston (Last name), Richard (First name), Elwyn (Middle name)

Exact Title THE HISTORY OF TRADE AND INDUSTRIAL EDUCATION IN OHIO.

Degree granted Ph.D., Date 1971 No. of pages in report 312

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

One major trend can be seen in trade and industrial vocational education from ancient times to today—a continued growth to meet the needs of increasingly industrialized societies and the demands of larger segments of the population.

From Pestalozzi to Herman Schneider and William T. Magruder and their work at the University of Cincinnati and The Ohio State University of Columbus, individuals lobbied and struggled, sometimes through organizations such as the National Society for the Promotion of Trade and Industrial Education, to make the public aware of its own needs and its responsibility for providing large-scale trade and industrial education.

In 1917, Congress responded with passage of the Smith-Hughes Act, which became the backbone of vocational education enabling legislation for the next fifty years.

Ohio's leaders were quick to take advantage of the funds provided by this and succeeding laws. While their programs were relatively unorganized to meet the needs of World War I, by World War II, Ohio's program for training both young people and adults for industrial and military occupations typified the response that federal support for vocational education had encouraged in the various states.

On the local level, trade and industrial schools developed at different times. In some of the more industrialized areas such as Cincinnati, they were organized as early as 1840, while in Canton and other more remote areas, trade and technical education schools didn't play a major role until 1930. Beginning with a nucleus of building trade and metal working courses, trade and industrial education continued to grow until today courses include every conceivable occupation in the industrial and technical sectors which do not demand college degrees.

On the university level, programs in Ohio, from teacher-training to law enforcement training have grown somewhat sporadically, but again, the key word is "growth". Men such as Byrl Shoemaker, Robert Reese and Joseph Strobel, working to implement new federal legislation throughout the 1950's and 1960's, have succeeded in spearheading the drive to bring practical education to every student so that when he leaves school he will be able to assume a useful place in the working force. In so doing, they have helped to make Ohio a national leader, not only in trade and industrial education, but also in industry itself.

As industry becomes more technically-oriented and as the population continues to grow, trade and industrial education will become even more necessary. With a firm background dating back over a century, a wealth of trade and industrial education experience, and the innovative leadership of educators, industrialists and government officials, such as Governor James Rhodes, Ohio will be prepared to meet the need.

Order No. 71-22,493, 312 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Jolly, Frank, Henry
(Last name) (First name) (Middle name)

Exact Title AN EXPERIMENTAL APPROACH TO CLASS LECTURE AND DEMONSTRATION TECHNIQUES IN TEACHING INDUSTRIAL ARTS.

Degree granted Ph.D., Date 1970 No. of pages in report 164

Granted by Iowa State University Ames, Iowa
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The objectives of this study were to design, build, and test a group of functioning teaching devices to investigate their capability to improve concept formation in hydraulics for industrial arts students.

To completely illustrate 25 basic concepts of hydraulics, 16 functioning teaching devices were designed and built. These devices were designed in such a way that they would show part placement, part function, and also monitor fluid movement through the device or system of devices when used on the overhead projector. Pepper was introduced into the fluid which filled the device. When this device was projected onto a screen, the pepper in the fluid permitted the fluid to be monitored easily.

The devices were tested for their mechanical and hydraulic realism and their capability for improving concept formation among eighth grade industrial arts students at Merrill Junior High School, Des Moines, Iowa. To do this, a non-equivalent control group design was employed.

A teaching method using the new devices on the overhead was compared to the more traditional teaching method where plastic film transparencies are used on the overhead projector.

The total sample of 120 boys was assigned by classes to one of two groups, control or experimental. A randomized procedure for assignment of treatments to classes was developed.

Upon completion of the two weeks testing period, an achievement test gain score and a retention test gain score were compared for significance with the aid of a computer. The specific format used was an analysis of covariance. The data were controlled on a current Iowa Test of Basic Skills composite score and the pretest score. A second part of the data analysis was used to find if an IQ advantage was inherent between or within either group.

The material tested in this project offers several advantages to the instructor in Industrial Education or related fields of mechanical sciences.

Three advantages are a significant gain in student achievement, a highly significant gain in student retention of that achievement, and that this material gives the teacher a method of instruction where he can teach students with a wide range of ability. He can achieve greater results with the lower ability students and not detract from the achievement of the upper ability students.

These advantages are gained from the capability of the functioning teaching devices to completely illustrate not only a concept, but to give a slow-motion study of that concept while it is in operation. This capability of total visualization which is inherent in all of the experimental devices removes the advantage usually associated with the higher IQ.

Other advantages observed during this study were greater motivation, higher student interest, and a promising method for teaching the academically handicapped.

Order No. 71-7287, 164 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Judd, William, Perry
(Last name) (First name) (Middle name)

Exact Title THE STATUS OF PRESENT AND PROJECTED VOCATIONAL-TECHNICAL TRAINING PROGRAMS IN THE STATE OF UTAH AND RELATED OCCUPATIONAL OPPORTUNITIES.

Degree granted Ed.D., Date 1971 No. of pages in report 467

Granted by Brigham Young University Provo, Utah
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine the extent of Utah's present and projected vocational-technical educational programs which were designed to prepare workers in Utah's industries and to determine how closely this total program correlated with the present and projected industrial employment needs of Utah during the next five years.

The findings of this study were: (1) The present and projected vocational-technical training programs in the State of Utah produced far less graduates at all levels than the needs for personnel in related occupational opportunities. (2) The responsibility for innovation and change in higher education was charged to the Utah Coordinating Council of Higher Education. (3) There was a need for expansion in vocational curricula and facilities and new area vocational schools. Present plans were not adequate for needs. (4) There was a lack of coordination between the vocational training programs at the secondary and post-secondary levels. (5) A major responsibility for the direction and orientation of vocational counseling was placed upon the counselor training institutions of the State.

Order No. 71-23,141, 467 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kahrmann (Last name), Robert (First name), George (Middle name)

Exact Title GUIDELINES FOR A CURRICULUM LEADING TO AN ASSOCIATE DEGREE IN FIRE SCIENCE TECHNOLOGY AT JERSEY CITY STATE COLLEGE.

Degree granted Ed.D., Date 1970 No. of pages in report 222

Granted by New York University (Name of institution) Washington Square, New York (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Although fire was one of the early discoveries of man, it was many years until organized efforts were made to face the dangers of fire. The first organized department began in Rome in 7 B.C. As time progressed, greater efforts in equipment and organization for fires took place. The developments in industrialization in the United States and the expanding population required a greater emphasis on training for fire fighting personnel.

The purpose of this study was to trace the development of educational efforts made to train men for the fire service, to examine offerings in institutions of higher education in the United States and to present guidelines necessary to the development of a curriculum in Fire Science Technology at Jersey City State College in Jersey City, New Jersey.

To carry out this study, the development of training for men in the fire service was presented. It showed the first efforts and current training taking place in the United States. In addition, the development of training programs in institutions of higher education was presented from the first program in 1903 through September of 1969.

In order to indicate the purpose and function of the programs at institutions of higher education, a questionnaire was developed. The questionnaire obtained information relative to the size, type and offerings of the various institutions. These questionnaires were sent to one hundred and thirty-five institutions identified as having a program. Attached to the returning questionnaire were copies of the curriculums and course descriptions.

Based upon information obtained from the questionnaires, needs expressed by fire service personnel and a number of other factors, guidelines for the development of a program in Fire Science Technology were established.

The questionnaires sent to the one hundred and thirty-five institutions were returned by one hundred and twenty-nine, a response of 96 per cent. This high response was caused by follow ups and telephone calls. From the information obtained, it was learned that one hundred and one offer associate degrees, five offer a baccalaureate, one offered a masters, forty-one a certificate program and eleven non degree programs. It was found that many institutions have more than one type of program available.

Fifty-four per cent of the programs are offered in the evenings and thirty-eight per cent in the day and evening to provide for the changing work pattern of firemen. In an examination of the various programs twenty-six courses are commonly found in the curriculums with variations to the titles.

Based upon an evaluation of all factors, the necessary guidelines leading to a proposal for a two-year associate degree in Fire Science were detailed in the study.

On the basis of the data collected, the following conclusions were reached: (1) Modern fire fighting requires a vast amount of knowledge and skill which must be obtained by training. (2) The historical development of the fire service has shown the increased demand for training as a necessary part of fire prevention and protection. (3) The systematic study of fire protection is relatively new. (4) There are three types of curriculums in the colleges, namely technician oriented, officer oriented and those for engineering personnel. (5) There is a wide variety in the level of training within many courses and within many of the curriculums. (6) There is a clear need for a program in fire science and it has been demonstrated that it would be successful if offered at Jersey City State College.

Order No. 70-26,462, 222 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kaiser (Last name), Ronald (First name), Earl (Middle name)

Exact Title SELECTED CHARACTERISTICS OF CHIEF COMMUNITY COLLEGE ADMINISTRATORS WITH REGARD TO THEIR BEHAVIOR TOWARD SECONDARY VOCATIONAL EDUCATION.

Degree granted Ed.D., Date 1971 No. of pages in report 118

Granted by Oregon State University (Name of institution) Corvallis, Oregon (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of the study was to analyze selected characteristics of a sample of chief administrators in community or junior colleges in the nation to determine their attitudes toward secondary vocational education. Samples of chief administrators in public post-secondary institutions which offered shared-time vocational education programs for secondary (high school) students on a part-time basis, as well as a sample of chief administrators in institutions not offering such programs, were included in the study.

The president or chief administrator, considered to be an arm of the college Board, was envisioned to be a major initiator of innovation or "change-agent" at the institution. The attitude of the chief administrator toward secondary vocational education was presumed to be a significant factor in adoption or non-adoption of such shared-time programs.

The thesis embodied in the study proposed that where it is possible and feasible to provide secondary vocational education programs through the "area vocational center" concept by the community or junior college serving an area, such arrangements would lead to optimum career development for secondary vocational education students.

Procedures

The data for the study were obtained through the use of a survey questionnaire administered to chief administrators in selected institutions in the nation. The questionnaire was administered to 300 community or junior college presidents in both "offering" and "non-offering" public institutions which do offer post-secondary occupational or vocational education. The F test statistic was used in statistically analyzing the data collected. Secondary data relative to: (1) the administrators' willingness to respond to secondary vocational education at the college and (2) the situational factors bearing on program adoption and operation are displayed.

Conclusions

In light of the statistical analysis of the study data, the null hypothesis under study—that there is no difference in the favorable attitude toward secondary vocational education between chief administrators of community or junior colleges offering shared-time vocational programs and those not offering such programs—is retained at the .05 probability level. Attitude differentials were evident but were judged not to be of significance.

Retention of the null hypothesis suggests examination of factors other than administrative attitude as being of critical importance to the acceptance and operation of shared-time programs.

Shared-time vocational programs between high schools and community or junior colleges is a relatively new innovation and represents a concept gaining in favor nation-wide. A number of states are enacting permissive legislation to provide for coordinate functioning between educational agencies and fiscal appropriations to support such cooperative effort.

Recommendations

It is recommended that further research be directed toward a more critical analysis of discrete differences in attitudes of administrators of post-secondary shared-time programs and administrators not engaged in the shared-time program concept. Further investigation is required to determine other critical factors influencing adoption of the concept.

It is recommended that the study be used as a base for development of legislation to allow and support coordination and cooperation of educational agencies to meet the demand for secondary level occupational preparation and vocational education.

It is also recommended that the study be used to establish a rationale for educational programs designed to increase the level of understanding and acceptance of shared-time vocational education programs by chief administrators.

Order No. 71-25,321, 118 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kassay (Last name), John (First name), A. (Middle name)

Exact Title FEASIBILITY OF LEARNING HAZARDOUS MACHINE OPERATION SKILLS BY MEANS OF A SELF-INSTRUCTIONAL SYSTEM.

Degree granted Ed.D, Date 1970 No. of pages in report 241

Granted by Washington State University (Name of institution) Pullman, Washington (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Nature of the Study

The study describes the organization, administration, and evaluation of a total self-instructional system designed to teach students safe and efficient methods employed in the operation of an intricate woodworking machine.

Purpose of the Study

The research was conducted to secure answers to the following questions:

1. Is it possible to organize units of instruction, utilizing a variety of instructional components, into a synchronized total self-instructional system for teaching perceptual-motor skills and related cognitive information pertaining to the operation of a radial arm saw?
2. Is it possible to design a total self-instructional system that will teach a varied population how to safely and efficiently operate the radial arm saw?
3. What will be the differential effectiveness of a varied population working with total self-instructional system?

Students' proficiency in adjusting the machine and performance in producing acceptable cuts were measured by jury determined acceptable performance standards.

Findings

Analysis of student accomplishment in knowledge gain and laboratory performance supports the feasibility of the total self-instructional approach for teaching knowledges and skills associated with operating a complex and potentially dangerous machine.

Significant number of participants met the high jury-established performance standards. The junior high school groups did not meet the performance standards. This may be attributed to standards set beyond the reach of this age level.

Students, working individually, completed the system in one to two sessions. Some students used an hour and fifteen minutes to complete the work, others took up to three hours. Average length of time was two hours and ten minutes.

Analysis of time used for completing the system, performance scores, and production results shows that variation within groups was as great as that between groups. The level of achievement of some groups was higher than for others.

Analysis of the data supports utilization of a system for introducing radial arm saw operation to high school students and adults. Employment in the junior high school is discouraged due to the maturity level of these students and their general lack of related experience.

Research Procedures

Operation and behavioral objectives concerned with having learners efficiently adjust the machine and skillfully produce three basic saw cuts were identified and instructional strategies formulated.

Instructional components appropriate to the instructional task were designed and built. Four single concept films with sound, four illustrated linear programmed instruction books, and three laboratory performance sessions were synchronized into a self-administering presentation.

Prerequisite entry competencies were determined through performance and knowledge pre-tests. Students selected were volunteers and each demonstrated lack of prior knowledge regarding the use and function of the machine.

The study population consisted of fifty students representing ten learner classifications. The scholastic grade levels included junior, senior, and high school equivalent, vocational education trainees, college students, and out-of-school adults. The age range was thirteen to seventy-two. Female students were represented. Forty-five students were chosen from various schools in the Bay area of San Francisco, California, and five from Pullman, Washington.

The system was organized around four instructional units. The units were: (1) orientation, (2) crosscutting, (3) miter cutting, and (4) rip cutting. After completing Unit I, which involved watching a loop film and studying an accompanying programmed book, the student proceeded to Unit II. Instructional sequences for Units II, III, and IV were similar in that the student watched a loop film, completed a programmed instruction book, and performed the machine operation.

Order No. 71-4404, 241 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author King, Franklin, J
(Last name) (First name) (Middle name)

Exact Title FEASIBILITY OF INCORPORATING TELELECTURE IN PRESENTING A TEACHING METHODS COURSE TO VOCATIONAL TEACHERS.

Degree granted Ed.D., Date 1970 No. of pages in report 157

Granted by University of Missouri Columbia, Missouri
(Name of institution) (City, State)

Where Available: Microfilm (✗) Microfish ( ) E.R.I.C. ( )

PURPOSE: To ascertain whether or not it is feasible for students to receive instruction in a professional teaching methods course, by either 100 per cent telelecture or a combination of 50 per cent telelecture and 50 per cent face-to-face lecture, without detriment to, but with possible advantages to, the learning process when compared to students who receive instruction by the more traditional face-to-face lecture-discussion method. More specifically, the study was designed to ascertain: (1) the cognitive outcomes—knowledge, comprehension and application—when heterogeneous groups are compared, (2) the outcomes when degree and non-degree students are compared with respect to application of teaching techniques, (3) the attitude outcomes toward the course and toward the practice of offering the course by telelecture, and (4) the comparable cost and time factors.

METHOD OF RESEARCH: This was a three-group controlled experiment, one semester in length. Each group consisted of in-service vocational-technical teachers enrolled by extension in the course, Education F390, *Principles of Teaching Industrial Subjects*. The control group (N = 15) was taught by the traditional face-to-face lecture-discussion method at Marshall, Missouri. One experimental group (N = 15) was taught by the 50 per cent telelecture and 50 per cent lecture-discussion method at Kansas City, Missouri, and one experimental group (N = 25) was taught simultaneously by the 100 per cent telelecture method at Hannibal and Joplin, Missouri.

SUMMARY:

(1) An Otis Employment Test and a pretest over the course content were administered to measure general ability and initial status.
(2) Comparisons relative to effectiveness of the three methods of teaching were based upon:
  (a) Informational achievement.
  (b) Performance of teaching capabilities.
  (c) Student attitudes.
(3) Direct costs were based upon an instructor salary of $10,400.00, long distance telephone toll charges, and rental costs of the following equipment per unit:
  (a) Audio—Western Electric Conference Set, Model KS-19134.
  (b) Data—Telephone Set, No. 601B.
  (c) Writer—Victor Electronic Remote Blackboard, with transmitter, receiver, and overhead projector.
(4) Automobile travel time was calculated with Columbia, Missouri, as the point of origination.
(5) Evaluation procedures included:
  (a) Two attitude scales.
  (b) Two written comprehensive examinations.
  (c) Two oral presentations to demonstrate ability to apply the teaching techniques presented during the course.
(6) The presentations were recorded on video tape and rated by three industrial education specialists.
(7) Data were analyzed by one-way analysis of variance, chi-square, coefficient of correlation, and concordance W. Tests of significance were at the .05 level of confidence.

FINDINGS:

(1) Neither of the three methods of presenting a professional course proved to be superior.
(2) The course objectives were achieved in an equivalent manner by each of the three methods investigated.
(3) No significant differences were found in the cognitive outcomes of knowledge, comprehension and application.
(4) There were no significant differences between degree and non-degree students relative to demonstrated teaching capabilities.
(5) Each method produced a positive attitude toward the course and toward the practice of offering the course by traditional and telelecture methods.
(6) The cost analysis based upon the equipment and procedures used in this experiment indicated a net savings of $1130.79.
(7) The net saving on instructor travel time, on the basis of this experiment, was three hundred and eight hours.

CONCLUSIONS:

(1) A professional course may be presented with equivalent results either by traditional or telelecture methods.
(2) Student attitudes were not adversely affected by either the course content or method of presentation.
(3) Telelecture was more economical in costs and in teacher travel time.

Order No. 71-3348, 157 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kist (Last name), Kevin (First name), William (Middle name)

Exact Title FACILITIES PLANNING FOR INDUSTRIAL ARTS TEACHER TRAINING PROGRAM AT THE CITY COLLEGE OF THE CITY UNIVERSITY OF NEW YORK.

Degree granted Ed.D., Date 1970 No. of pages in report 261

Granted by Columbia University (Name of institution) New York, New York (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Because a new School of Education Building is now being planned as part of The City College of The City University of New York Expansion Program, it was necessary to develop a facilities plan for the Industrial Arts Department. Since 1965 the author has been involved with the formulation of these plans, space determinations, and facilities requirements which would include:

1. Supporting the objectives of the program with plans to facilitate the best possible Industrial Arts rooms on the college level within the limited space made available to the Industrial Arts Department.
2. Keeping pace with the ever increasing demands of new technology.
3. Allowing sufficient future expansion through the flexibilities within this plan to meet the increasing demands for Industrial Arts teachers.

It was ascertained that there were no standards or guides for the planning of Industrial Arts facilities on the college level even though there are numerous such guides for the junior and senior high schools. The difference in the mission of public school Industrial Arts and teacher education Industrial Arts render these standards to be of limited value.

Therefore, the following procedures were adopted:

1. Architectural planning meetings to understand the architect's concept of the building program.
2. Industrial Arts Department meetings to develop a clear statement of the educational goals and curriculum revision for the Industrial Arts Teacher Education Program.
3. Review of other Industrial Arts facilities on the college level.
4. Meetings with individual professors to ascertain general and specific requirements for specific areas.
5. Meetings with students through their Industrial Arts Education Society regarding the facilities needs of the Department.
6. Periodic progress reports to faculty and students.

The organization of this material took what the author felt to be a logical, sequential development. First, the basic requirements for all shops were ascertained. These requirements are common to every area regardless of the activity conducted within the shop. Such basic rationale and concepts were: space considerations, ceiling, flooring, walls and doors, windows, storage needs, auxiliary space requirements (instructional and non-instructional), audio-visual requirements, general utility requirements, equipment and furniture requirements, grouping, traffic flow, and safety.

Secondly, the specifications and plans for each shop individually follows the same format as presented in the basic requirements for all shops. Finally, a detailed floor plan is provided for each shop indicating equipment placement and groupings for related activities.

The format of this facility plan, hopefully, will serve as a model for future such plans undertaken by The City College or by other universities or colleges with similar programs.

Order No. 70-26,786, 261 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kleiman, Herbert, S.
(Last name) (First name) (Middle name)

Exact Title THE INTEGRATED CIRCUIT: A CASE STUDY OF PRODUCT INNOVATION IN THE ELECTRONICS INDUSTRY.

Degree granted D.B.A., Date 1966 No. of pages in report 260

Granted by George Washington University Washington, D.C.
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The electronics industry has been shaped by two major innovations over the past fifty years: first, the vacuum tube, and then the transistor. The integrated circuit (IC), similar in many respects to the transistor, appears to be the third in this sequence; its influence may be more pervasive than that of either of its predecessors. Its potential impact goes beyond manufacturers who make and market the new device and resultant equipments, and will affect many other industries that have become increasingly dependent upon electronic systems.

Innovation within the framework of the business enterprise is discussed. The need for innovation is generally accepted; the means by which it is achieved and the techniques best designed to optimize the process enjoy no consensus. The requirements of the business organization may be at odds with those of the individuals who are agents for the change. Social factors must also be considered in the analysis.

The study is basically an investigation of a particular innovation--the integrated circuit. The major sources of data were obtained from a review of the literature; an extensive interview schedule with major personalities from Government, industry, and financial and academic institutions; and the author's professional experience in this field. Although the first clearly discernible IC research and development funding began in 1959, the inputs to the innovation process trace back many years earlier. The major factors, both economic and non-economic, are evaluated to determine their relative contributions to the introduction and subsequent development of the new product. A documentation is presented of the events and trends of the fifties that acted as innovative stimuli. The effects of actions and policies by military and industrial agencies are reviewed in the areas of research and development, miniaturization, and reliability. The economics and technology of the semiconductor components industry are considered.

Events accompanying the growth of the IC component are described. The technical and business periodicals gave wide coverage to IC activities, while offering the proponents of the new technology--both Government and industry--a medium with which to expound their views and enthusiasm. The press both reported and influences; its impact as an advocate for the IC cause was considerable.

The inventions of the vacuum tube and transistor are briefly reviewed. The conditions and motivations that prevailed for these two components differ widely from each other and relative to the integrated circuit.

The Government-Industry relationship is closely examined. Perhaps more so than any other technological innovation, the integrated circuit represents a new product nurtured and encouraged by Government interest and financial support. The demand for this new component arose from the requirements of the military and, to a lesser degree, NASA. Government agencies, and especially the Air Force, not only voiced their needs in clear unambiguous terms, but they were willing to fund projects offering possible solutions. The semiconductor components industry, e.g., those manufacturing transistors, was enjoying a rising demand for its products, and several of the major participants were very successful. The interrelationship between Government agencies and the larger semiconductor industrial firms led to the IC innovation. Government expenditures have undoubtedly induced even greater outlays by the industry itself toward the same end, i.e., the creation of a new improved electronic component. This relationship is critically reviewed.

Conclusions are offered pertaining to the IC instance in particular and to technological innovation in general. The most cogent comments relate to the Government-Industry relationship and how it can assist or frustrate the innovation process.

Microfilm $3.35; Xerography $11.70. 260 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kruger, John, Mott
(Last name) (First name) (Middle name)

Exact Title INTERACTION PATTERNS OF INDUSTRIAL ARTS TEACHERS IN LABORATORY TYPE SITUATIONS AT THE JUNIOR HIGH SCHOOL LEVEL.

Degree granted Ed.D., Date 1971 No. of pages in report 176

Granted by University of Northern Colorado Greeley, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of this study was to use the Industrial Arts Interaction Analysis System to study teacher-student behavior in junior high school industrial arts classes.

Procedure

The sample population for this study included twenty industrial arts teachers at the junior high school level. Each teacher was observed on three different occasions during the course of approximately six weeks. During the observation periods the interaction which took place between the teacher the the students was recorded onto a grid by two independent observers every three seconds or as the type of interaction changed.

From the data collected from each observational period, a twelve row by twelve column matrix was generated for each class period, by activity. From these matrices information pertaining to teaching patterns, amount of time spent in teacher talk, student talk, silence, and other classroom activities could accurately be determined and described.

Reliability between the two observers was determined by using Scott's coefficient; the degree of agreement of 0.85 was established as a minimum acceptable score for this study. In each observational case the coefficient of agreement was 0.85 or better.

The validity of the Industrial Arts Interaction Analysis System instrument has been established in the research conducted by Loepp.

Findings

Findings resulting from this study were as follows:

1. There were patterns of interaction which existed between the teacher and the students.
2. The greatest percentage of classroom time in the junior high school industrial arts program was spent in directed activity.
3. Lecture as a method of instruction in the junior high school industrial arts program was used to a very limited extent.
4. During administrative duties, demonstration, and lecture the teachers did nearly all of the talking. During directed activity the percentage of teacher talk compared to student talk was down slightly.
5. Teacher talk was highly directive in nature during administrative duties, demonstration, and lecture. A slightly less directive pattern was used by teachers during directed activity.
6. Student talk in all activities was very limited in the junior high industrial arts program.
7. During administrative duties and direct activity approximately one-half of the class period was free of verbal interaction. During lecture and demonstration the amount of silence was considerably less, approximately 12 per cent.
8. The Industrial Arts Interaction Analysis System was found to be capable of providing data concerning the following items in junior high school industrial arts situations. The following data were available:
   a) Percentage of classroom time spent in administrative duties, directed activity, demonstration, and lecture.
   b) Percentage of teachers' time spent in praising or encouraging students, accepting student feelings, questioning, information giving, direction giving, and criticizing or justification of authority.
   c) Percentage of direct and indirect teacher talk including an indirect/direct ratio.
   d) Percentage of student talk divided into the categories of response to teacher and student initiated response.
   e) Percentage of classroom time spent in silence; the amount of this time in direct and indirect nonverbal interaction as well as the time devoid of interaction.
   f) Percentage of classroom time spent in chaos and confusion.
   g) The general patterns of teacher-student interaction along with common teaching patterns of each activity.

Selected Conclusions

1. Junior high industrial arts teachers need to know how to use the class's time spent in directed activity effectively.
2. Students enrolled in junior high industrial arts programs need to be encouraged to respond to class activities to a greater degree through the use of indirect type teacher talk.
3. An important nonverbal link exists between the teacher and the class members. This is created by either the teacher observing the class as a whole or by his walking through the laboratory assisting the students.
4. There are a number of basic teaching patterns displayed during each of the four activities.

Selected Recommendations

1. Industrial arts education institutions should prepare future teachers to use their time effectively while working in a laboratory type situation. In-service type training sessions concerned with ideas and recommendations for better use of laboratory time should be made available to teachers currently in the field.
2. Existing and future classroom teachers should be given instruction on how greater percentages of constructive classroom talk can be initiated from students.
3. Teachers, both current and future, must be shown the importance of understanding the basic psychological principles of education. Suggested techniques which tend to create a more indirect teacher-student environment in the classroom should be demonstrated and explained to teachers.

Order No. 71-20,723, 176 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kruppa (Last name), Richard (First name), Andrew (Middle name)

Exact Title THE RELATIONSHIP BETWEEN PSYCHOMOTOR ABILITY AND CRITICAL OBSERVATION AND EVALUATION ABILITY.

Degree granted Ph.D., Date 1970 No. of pages in report 181

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

It is often assumed that an individual who has developed a certain manipulative ability is a better judge of that ability in others than a person who has not developed similar powers. Consequently, the hypothesis was that an individual's manipulative ability in industrial arts woodworking and his ability to observe and evaluate critically those skills in others are related. It was further hypothesized that the nature of the relationship is positive and linear.

The investigator prepared, validated, trial administered, and revised two instruments. A Work Sample Instrument (WSI) was a performance checklist of criteria of work samples of five common woodworking saws. Validation was determined by subjecting the device to a jury of experts. The criteria for the checklist items were derived from textbooks written for college-level instruction in the safe and proper use of the woodworking saws. A Recognition Instrument (RI) was constructed to assess critical observation ability. The items were parallel forms of the checklist criteria that made up the WSI. The completed instrument was in the form of a series of questions about sequences of sawing performances recorded on videotape. The instruments were administered to 77 undergraduates and graduate students at Bowling Green State University, Bowling Green, Ohio. The sample was a nonprobability type. The purposively selected participants represented students who had only a few weeks of formal instruction and no experience, to students with many years of teaching and/or industrial work experience and several courses of instruction in the use of the saws.

Each participant performed five sawing tasks. Each was observed in the process and rated from the checklist in regard to his proper and safe operation of the tool or machine by experienced college faculty who had been trained at observing the tasks. Following the administration of the WSI, participants viewed the videotaped RI. They saw on the screen samples of the performance they had just been asked to perform. Questions were asked about specific criteria, and the respondents identified whether the performance they were observing was "proper" or "improper."

Data of two kinds were analyzed—data dealing with instruments, and data dealing with the relationship between the two instruments. The first category asked how adequately the two instruments performed. The WSI achieved a validity rating of 8.333/10.000, a split-half reliability of .822, a mean item discrimination of .237, and a mean item difficulty of .662. The RI had a validity rating of 9.000/10.000, a split-half reliability of .326, a mean item discrimination of .142, and a mean item difficulty of .750.

The second type of analysis concerned the relationship between the traits measured by the two testing instruments. In addition to the two major variables under study, data reflecting three others were collected. These included accumulated university grade point average, American College Testing Program (ACT) scores, and previous experience in coursework, teaching, and industrial work in which saws were involved. More than any of the other variables, critical observation ability was correlated with manipulative performance ability at .297 (sig. .01). The multiple correlation of all four variables with the WSI was .396 (sig. .05). Corrected for attenuation, the coefficient increased to .573.

The investigator concluded that:

1. Psychomotor and visual observation abilities with sawing tasks are related (sig. .01).
2. A valid and reliable sawing task performance test (WSI) had been developed.
3. A valid but less reliable recognition test of sawing tasks (RI) had been developed.
4. Stronger, more reliable instrumentation would yield higher correlations between the traits investigated.

Order No. 71-18,037, 181 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kuwik (Last name), Paul (First name), David (Middle name)

Exact Title A QUASI-EXPERIMENTAL STUDY OF TWO SELECTED UNITS OF THE INDUSTRIAL ARTS CURRICULUM PROJECT MATERIALS TO DETERMINE THE MEASURABLE ADDITIVE EFFECTS OF A UNIT ON DESIGN IN MANUFACTURING TECHNOLOGY UPON A SIMILAR UNIT ON DESIGN IN CONSTRUCTION TECHNOLOGY.

Degree granted Ph.D., Date 1970 No. of pages in report 190

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The problem involved an evaluation of the additive effects of selected units from the Industrial Arts Curriculum Project's two-course sequence "The World of Construction" and "The World of Manufacturing." The problem was to determine what additive effects exist in a unit on design offered during the eighth grade course in manufacturing technology upon a unit on design offered during the seventh grade course in construction technology.

An achievement test designed to measure "The Technological Principles of Design" was developed and pilot-tested with a group of 127 students in the Columbus, Ohio, Public Schools. Based upon the results of item analysis, the instrument was refined and then administered to four treatment groups in the Long Beach Unified School District, Long Beach, California. The four groups were (1) an experimental group of eighth grade IACP students exposed to the design units on construction technology in the seventh grade and manufacturing technology in the eighth grade; (2) an experimental group of seventh grade IACP students exposed to the design unit in construction technology but not to the design unit in manufacturing technology; (3) a control group of eighth grade students enrolled in a conventional program of industrial arts, with no exposure to the design units in construction or manufacturing technology; and (4) a control group of seventh grade students enrolled in a conventional program of industrial arts, with no exposure to the design units in construction or manufacturing technology. Student ability scores were determined from the Henmon Nelson Test of Mental Ability. Hypotheses were then presented which predicted the significant additive effects between the treatment groups and interaction between achievement and ability.

The data were analyzed using ANOVA, ANCOV, and Duncan's Multiple-Range Test. The hypotheses were accepted or rejected on the basis of the analyses performed.

The results of the analyses indicated that there was a significant amount of additive knowledge when students had been exposed to two units in design, one in construction technology and one in manufacturing technology, as opposed to only one exposure of construction technology. Statistical analyses also indicated a significant difference between the achievement scores of the seventh grade control group and the seventh grade experimental group, with the latter group achieving at a higher level. There were no significant additive effects between the scores of the eighth and seventh grade control groups.

After the four treatment groups were stratified into three levels of high (141-111), medium (110-98), and low (97-65) ability, analyses indicated that there was no significant interaction between treatment and ability levels within the control group cells. Statistical analyses also indicated that there was no significant interaction between the experimental groups of high and medium ability levels. Significant interaction was evident within the experimental cells of the low ability level.

The findings indicate that the technological concepts and principles of design are significantly additive when a second design unit (in "The World of Manufacturing") is provided to build upon the concepts provided by a prior design unit (in "The World of Construction"). When the cell groupings of high, medium, and low ability were explored, the findings further indicate that there is significant interaction within the low ability level cells of the experimental groups.

Order No. 71-7496, 190 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Lindahl, Donald, Gene
(Last name) (First name) (Middle name)

Exact Title COMMONALITIES IN THE PROFESSIONAL EDUCATION COMPETENCIES OF SELECTED COMMUNITY COLLEGE VOCATIONAL INSTRUCTORS.

Degree granted Ed.D., Date 1971 No. of pages in report 102

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this research was to determine, if there are and the nature of, the common professional education competencies of selected community college vocational instructors. The respondents in the study represented four instructors from each of 40 community colleges selected from the four western states of California, Colorado, Oregon and Washington. The respondents were selected from the vocational program areas of agriculture, health, home economics, and service occupations.

Five major dimensions were included in the study: 1) Construction of a professional education competency questionnaire. 2) Data analysis to determine if significant differences existed among the competencies for the community college. 3) Factor analysis of data to determine the common professional education competencies needed by community college vocational instructors. 4) Factor analysis of data to determine the extent of resemblance between the instructors according to ratings given to professional education competencies. 5) The formulation of implications to be considered in the professional development of community college vocational instructors.

The dependent variable in the study was a score judgmentally assigned by respondents to a five-point Likert-type scale for each of the 99 professional education competencies included in the mail-survey questionnaire. The data resulting from the 160 respondences to the questionnaire were analyzed for variance with rejected competencies tested for least significant differences.

The major interest in the study was to factor analyze the data using both the R- and Q-techniques. The Q-technique ordered respondents according to competencies, while the R-technique ordered competencies according to factor loadings. The R-technique factor analysis was programmed to compute a six-factor solution. This procedure yielded five interpretable factors, 54 competencies receiving factor loadings at a significant level for inclusion in the factors (clusters).

Analysis of data revealed that there was no significant difference among the mean scores for community colleges and that commonality existed among the vocational instructors in these colleges in terms of responses to competency items. The data further revealed that the most important competencies were those relating to instructional management, such as teaching and guidance strategies. Lowest ranking competencies were those relating to program management, including interpretation of history, philosophy, requirements, and laws dealing with education.

The generated commonalities indicate that community college vocational instructors, regardless of program area, state, or college, need proficiency in a common core of performance-based professional education competencies.

Order No. 71-25,067, 102 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Loepp (Last name), Franzie (First name), Lee (Middle name)

Exact Title THE DEVELOPMENT OF A SYSTEM TO ANALYZE TEACHER-STUDENT INTERACTION IN JUNIOR HIGH SCHOOL INDUSTRIAL ARTS CLASSROOMS.

Degree granted Ed.D., Date 1970 No. of pages in report 255

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of the study was to develop a reliable, valid category system that can be used to provide data concerning teacher-student interaction in junior high school industrial arts classrooms. A secondary purpose was to generate a list of recommendations for further research that may be pursued through the use of this system.

Procedure

Ten junior high school industrial arts teachers were selected to participate in the study. They were each observed seven times. The first visit was used to explain the nature of the study and establish a friendly relationship with the administration and industrial arts teachers. During the second and third observations information was gathered by taking notes and recording verbal teacher-student interaction on magnetic tapes. After this information was analyzed, a category system was developed for industrial arts classrooms.

The fourth and fifth observations of each teacher were used to field test the newly developed category system. During this time the system was revised into its present state and named the Industrial Arts Interaction Analysis System.

Reliability was checked by two trained observers who made simultaneous, independent, on-the-spot codings for two class periods in each of the ten laboratories. Subsequently, ten additional teachers were selected and observed one time each. The extent of agreement between the two observers was determined through the use of Scott's coefficient. In each case the coefficient was found to be 0.80 or higher. Therefore, the Industrial Arts Interaction Analysis System was considered reliable.

Validity was checked by a jury of six industrial education educators who analyzed the system and its categories. They judged the system to be all inclusive and the categories mutually exclusive. They also found the data interpretation process to be valid in relation to the description of the categories.

Findings

Reliability and validity

The Industrial Arts Interaction Analysis System was found to be a reliable, valid category system that can provide data concerning teacher-student interaction in junior high school industrial arts classrooms.

Data provision

The Industrial Arts Interaction Analysis System was found to be capable of providing data concerning the following items:

1. Percentage of classroom time spent in administrative duties, directed activity, demonstration, and lecture.
2. Percentage of teacher's time spent in praising or encouraging students, accepting student ideas or feelings, questioning, information giving, direction giving, and criticizing or justifying authority.
3. Percentage of direct and indirect teacher talk including an indirect/direct ratio.
4. Percentage of student talk divided into the categories of response to teacher and student initiated statements.
5. Percentage of classroom time spent in silence; the amount of this time spent in direct and indirect nonverbal interaction as well as the time devoid of interaction.
6. Percentage of classroom time spent in chaos and confusion.
7. The general patterns of teacher-student interaction along with the common teaching patterns of each activity.

Selected Conclusions

1. The Industrial Arts Interaction Analysis System can be used to describe teacher-student interaction in junior high school industrial arts classrooms.
2. The Industrial Arts Interaction Analysis System can be used to compare teacher-student interaction of different classrooms and aid in the identification of effective teaching patterns.

Selected Recommendations

1. Increase the population of this study and conduct further research to determine a more accurate description of the teacher-student interaction in junior high school industrial arts classrooms.
2. Conduct further research to compare and identify the most effective teaching patterns for junior high school industrial arts instruction.
3. Conduct further research to determine the applicability of the Industrial Arts Interaction Analysis System to the senior high school and college levels of industrial arts education.

Order No. 71-4191, 255 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Long (Last name), Gilbert (First name), Andrew (Middle name)

Exact Title PERSONNEL RESPONSIBLE FOR DECISIONS INFLUENCING VOCATIONAL EDUCATION IN LOCAL SCHOOLS.

Degree granted Ph.D., Date 1970 No. of pages in report 146

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purposes of the research were to determine where in the administrative hierarchy of the school system decisions are made concerning vocational education, to measure the extent of agreement by vocational teachers, principals, and superintendents concerning who makes the decisions, to investigate the relationship between the extent of teacher-administrator agreement in perceptions of decision responsibility, and selected organizational and individual variables, and to determine the extent of agreement between jury projections concerning the location of decision responsibility and the perceptions of the three respondent groups.

A decision analysis instrument composed of forty-five decisions was developed with the aid of a jury of experts in school administration. The decision items were designed to be representative of five administrative task areas (Curriculum and Instruction, Pupil Personnel, Staff Personnel, School-Community Relations, and Finance and Business Management) and three responsibility levels (vocational teacher, principal, and superintendent). The superintendents, principals, and 204 vocational teachers in twenty-two purposely selected secondary schools in Ohio were interviewed.

Analysis of responses from the three respondent groups indicated the same modal response concerning who makes the decision for thirty-eight of the forty-five decisions. The three respondent groups and the jury were in agreement for thirty-five of these thirty-eight decisions as indicated by similar modal responses concerning who was responsible for making each decision. It was inferred that experts in educational administration can project decision-making functions in secondary schools. Greater agreement in perceptions by superintendents, principals, and vocational teachers was found concerning teachers' responsibilities than for principals' or superintendents' responsibilities. The three respondent groups had the same modal response for fifteen teacher decisions, eleven principal decisions, and twelve superintendent decisions. Seven decisions did not receive similar modal responses from the three respondent groups. It was inferred that teachers' decisional functions are more commonly recognized than are those of the principal or superintendent.

Educational degrees earned by vocational teachers, recency of return to school, years of teaching experience, sex of the teacher, size of school, degree of teacher association activity, and the presence or absence of a local district vocational supervisor were related to the degree of teacher-administrator agreement in perceptions concerning who makes decisions about vocational education in local schools. Vocational teachers in smaller schools were more likely to share similar perceptions of administrative decision responsibility with administrators than were teachers in the larger schools. Vocational teachers who had earned more degrees were more likely to agree with their administrators concerning the location of decision responsibility than were teachers who had fewer degrees.

Order No. 71-7506, 146 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Mansfield (Last name), Wesley (First name), Briscoe (Middle name)

Exact Title A STUDY OF TIME ALLOTMENTS TO FIRST-LINE SUPERVISORY ACTIVITIES IN TEXAS MANUFACTURING INDUSTRIES WITH IMPLICATIONS FOR TRAINING PROGRAMS.

Degree granted Ed.D., Date 1970 No. of pages in report 192

Granted by Texas A&M University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The subject of this study was the job-related activities of first-line supervisors in **Texas Manufacturing** industries. The objective of the study was to make determinations with respect to three aspects of the activities of supervisors. These were: (1) activities which varied from one position to another in the amount of time allotted, (2) the extent of the variation among positions, and (3) the factors which contribute to variability.

Activities were preselected to reflect the scope of supervisory functions at the first level of supervision. The investigation included positions which were representative of supervisory assignments found in manufacturing industries in Texas. The purpose in making these determinations was to acquire information to assist in the development of more effectual training courses for first-line supervisory personnel.

The study was limited to first-line supervisors employed by selected companies listed in the *1970 Directory of Texas Manufacturers*. The inquiry included only supervisors assigned to production, maintenance, shipping, receiving, and warehousing departments. The investigation was confined to a determination of how the time of supervisors was actually allotted; no effort was made to establish the optimum allocation of time.

Research procedures included the following: (1) development of the research design, (2) identification of job-related activities of supervisors by means of a pilot study, (3) a determination of characteristics of the supervisor's job postulated to influence the amount of time allotted to the activities, (4) development of a tentative survey questionnaire, a pretest survey to evaluate the instrument, and revision of the questionnaire, (5) selection of the primary sample (companies) and secondary sample (individual supervisors), (6) collection of data, (7) an analysis of data.

Twelve categories of supervisory activities constituted the dependent variables in the study while nine characteristics of the supervisor's job were designated as independent variables. These characteristics were: (1) type of manufacturing (seven divisions), (2) size of company in terms of number of employees (four ranges), (3) departmental assignment (three categories), (4) number of subordinates, (5) years of supervisory experience, (6) the utilization of semi-supervisors as assistants, (7) representation of subordinates by a union, (8) the extent to which production was automated, and (9) the percentage of employees recently transferred or employed.

The major hypothesis was that the amount of time allotted to various job-related activities was not influenced by the characteristics of the job. Analysis of covariance was used to analyze the relationships. Sample means were weighted to provide estimates for the population of supervisors included within the limits of the study.

Significant differences due to effects of one or more factors, interactions, or covariates were found for all but two of the twelve activities. While statistically significant at the 0.01 level of confidence, differences were generally small in terms of percentages of time.

It was concluded that the amount of time allotted to various job-related activities of first-line supervisors does vary from one position to another, but the extent of variation is generally small. Numerous factors contribute to the variability.

The findings of the investigation appear to confirm the premise that there are basic activities which are characteristic of all supervisory positions in manufacturing industries. Training programs for supervisory personnel should be based on the actual functions and responsibilities that are a part of the supervisor's job.

The fact that all supervisors have essentially the same functions, however, does not necessarily mean they all have the same problems. Training programs should include procedures that permit both supervisors and instructors to recognize and diagnose problem areas of individuals and groups during training sessions. Course content and methods should be sufficiently flexible to accommodate the specific needs of individual supervisors.

Order No. 71-17,854, 192 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Marrah, John, Andrew
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT OF A PLAN FOR A COMPREHENSIVE VOCATIONAL EDUCATION PROGRAM IN A LARGE METROPOLITAN AREA.

Degree granted Ed.D., Date 1970 No. of pages in report 289

Granted by Univerisy of Cincinnati Cincinnati, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The vocational study was undertaken to utilize input criteria as required for the planning and development of a comprehensive vocational education program in a large metropolitan area. The study viewed the development of the vocational education program with compliance to local and state vocational education requirements. The study reflected the use of method and orderly planning, the effective use of input data for decision making, the processing of the input data, the continued review of feedback information, and constant consideration of output criteria in the form of established objectives to meet the desired goals.

The objectives of the study were to achieve a more efficient and economical operating organization structure while maintaining and improving the vocational instructional programs, the services to students and the community, and the fulfillment of needs in business and industry. Another major objective was to develop regulated administrative functions in such a way as to bring about desired changes and innovations in vocational education.

Specific assertions supported with evidence included the following:

1. School systems should merge together to form a more efficient operational program for enlargement of vocational education offerings to meet the needs of each student and the community at large.
2. Vocational education programs should be offered to fill the needs of industry within the metropolitan area, to coincide with jobs available in industry, and to fill the desires of students for specific vocations.

The investigative process used was designed specifically for the review of data and utilization of input criteria for this study. The writer served as a vocational education consultant to obtain data for the study. Various sources were used to supplement and verify data secured by personal interviews. The presentation of data tables was accomplished in summary form to display specific results obtained from school districts in the two-county area of Franklin and Madison Counties, Ohio.

The related literature was reviewed with the intent of presenting pertinent writings in support of developing the comprehensive vocational education program in a large metropolitan area. The historical review presented the important events and the philosophy of vocational education by tracing former vocational education acts.

The present and future objectives of vocational education were reviewed through the writings of persons noted for their expertise in vocational education planning.

The current events were reviewed by outlining the legal aspects and responsibilities of the state and federal agencies toward improving the total vocational program. The review of the literature involved in the future presented acceptable projections for meeting anticipated needs and objectives in vocational education.

Information gathered for planning and development of the comprehensive vocational education program in a large metropolitan area must include such data as the following:

1. The needs of industry
2. The needs of students and the community at [illegible]
3. The current vocational education program
4. Model programs in vocational education
5. Application of data for vocational education projections

The analysis and interpretation of the data was accomplished with the intent of establishing an ideal pattern or plan that can be applied to fulfill the vocational education goals and objections in the two-county area.

The assessment of industry needs was based on the data presented in the study. The labor force was identified and the employment opportunities for job seekers were evaluated from the standpoint of matching individual qualifications with job requirements.

Many school officials and community leaders when interviewed touched on several of the same problems in vocational education. These problems included vocational education stigma, busing problems, class scheduling, home school spirit, tax base, and lack of relevance in the vocational training needed in both public and non-public schools.

Student needs were enumerated with enrollment data, vocational interest survey data, and the discussion of the current vocational education programs in the schoool districts in the two-county area.

The findings and conclusions pointed out that two additional comprehensive vocational education centers would serve the students in the jointure of all the school districts in the two-county area. The annual cost for capital outlay, $898,766, and the net operating expense, $2,778,384, total $3,677,150 for the two comprehensive centers serving an additional 5,410 students by 1974. The total cost of $3,677,150 could be raised by a tax levy of approximately 1.3 mills in each of the school districts with a total tax valuation base of $2,833,069,645 in the two-county area.

Order No. 71-6414, 289 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Marshall, Charles, Robert
(Last name) (First name) (Middle name)

Exact Title CRITERIA FOR THE DEVELOPMENT OF GUIDELINES FOR AN INFORMATIONAL DECISION MODEL FOR VOCATIONAL EDUCATION.

Degree granted Ed.D., Date 1971 No. of pages in report 142

Granted by Washington State University Pullman, Washington
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine the criteria for the development of guidelines for an informational-decision model in the area of vocational education. A review of the literature on vocational education and the reporting forms used by the United States Office of Education and the Coordinating Council for Occupational Education in the State of Washington was conducted for the purpose of identifying local data beneficial to the state office. The proposed guidelines were classified into seven categories which formed the base of the study. These were:

I. Information concerning the economic and manpower requirements of the local district was designated as the greatest area of need by the respondents. The average rating for this category was 1.68.
II. The vital field of supervision and evaluation was classified as the second essential of the study, with an average rating of 1.77.
III. Data about facilities and equipment was judged the third requisite by the respondents. The average rating was 1.81.
IV. The fourth necessity listed by the directors was pertinent knowledge concerning students. This average rating was established at 1.85.
V. The area of program costs and financing was not categorized in as prominent a position as might be expected. The average rating of 1.98 indicated its lack of prominence.
VI. The need for information about the philosophy and objectives of the local districts was not considered vital or necessary by the respondents. This was rated with a 1.99 average rating.
VII. Personnel data received the least consideration by those responding. This guideline was ranked lowest in relevance with an average rating of 2.88.

These tabulations indicated the guidelines provided by the respondents for the development of an informational-decision model.

These criteria were refined and incorporated into a survey instrument of 65 statements which was sent to all of the state directors for vocational education in each of the 50 states. The statements were framed in a manner which allowed each respondent to indicate his individual requirements concerning vocational education from the local school district.

The directors displayed a strong commitment to four of the seven broad categories. The questionnaire encompassed 65 items to be judged, and 38 of these attained the level of acceptance established for the study. This depicted a need for a variety of information. The respondents deleted items which included specific information concerning the teachers and program costs.

Ninety percent of the directors contacted responded with a completed questionnaire. This fact suggested that the state directors were concerned with the need for a vocational education information system.

The general consensus of the study was that the local district must provide a complete resume of the total vocational program, and that the state office must serve as the essential switching point if an effective informational-decision system is to be developed.

Order No. 71-18,582, 142 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Martin, William, Eugene
(Last name) (First name) (Middle name)

Exact Title AN ASSESSMENT OF THE OCCUPATIONAL EDUCATION CAPABILITY OF SCHOOLS IN KALAMAZOO COUNTY, MICHIGAN.

Degree granted Ed.D., Date 1970 No. of pages in report 241

Granted by University of Cincinnati Cincinnati, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

Purpose. The major purpose of this study was to assess the effectiveness of existing occupational education programs, and related services conducted by the schools in Kalamazoo County, in relation to an acceptable criteria for "total vocational education." The development of the criteria to serve as "goals for vocational education" was also a part of the work of the writer.

Procedure

Subsequent to initial discussions with local officials, extensive readings were made of the works of highly regarded references in the development of a philosophical basis for vocational education. The foundations, purposes and principles of public education in our society were outlined. This philosophical basis served as the rationale for the development of tentative criteria for vocational education in the designated area.

Demographic data relative to the region were reviewed and groups of persons who can logically benefit from vocational education were identified. Models of occupational education and related services were constructed to serve as guidelines for the several criteria factors. Tentative criteria were developed based on the needs of people identified, and the philosophical basis previously established. Subsequent to adoption of the criteria by local officials, the several items were ranked according to relative importance from the results of an opinion questionnaire.

A school survey of occupational education and related services was conducted with controlled methodology to insure total return of information. The data obtained in the survey were presented in graphic and tabular format. The total scope of capability is discernable due to the inclusion of all schools, non-public as well as public, in data presentation.

The data as presented were interpreted in relation to the criteria previously developed. Identifications were made of the strengths and weaknesses in existing occupational education capability, and the findings were listed.

The recommendations presented are based on the findings from the interpretation of data and the guidelines suggested by the criteria as approved by local officials, and ranked from the questionnaire returns.

Findings and Recommendations

It is the purpose of education to provide each individual the opportunity to develop his fullest potential as a contributing member of society. Vocational education is an educational function and a vital part of the total public education responsibility. A well planned program of career information should be conducted at both the elementary and secondary levels. It is apparent that this is not taking place in Kalamazoo County. Guidance programs in the schools are out of balance with a disproportionate emphasis placed on services for college bound students.

An insufficient variety of vocational education programs are available to students in the county. Additionally, students from small schools do not have access to vocational education on an equitable basis. The community college should continue to develop and sponsor post high school training programs to meet the needs of those who qualify for such training. Adult vocational programs should be amplified to meet the needs of more people.

Practical arts programs should be more uniform in objectives and methodology. More students should be able to take advantage of practical arts courses.

More programs should be developed to accommodate disadvantaged potential dropouts. Vocational education should assume a significant portion of this responsibility.

Additional facilities will be required to accommodate needed high school vocational education and community college technical programs.

Recommendations relative to career information programs, pupil personnel services, practical arts programs, vocational education, an area vocational-technical center, cooperation of the intermediate school district and the community college, planning and preparation, public information and involvement, and staffing were made.

Suggestions for further study include the need to conduct a manpower needs survey, and to investigate the legal aspects of joint sponsorship of area vocational-technical centers.

Order No. 71-6404, 241 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Mason, William, Hugh
(Last name) (First name) (Middle name)

Exact Title ATTITUDES OF INDIANA HIGH SCHOOL PRINCIPALS AND COUNSELORS TOWARD INDUSTRIAL ARTS

Degree granted Ed.D, Date 1970 No. of pages in report 184

Granted by University of Missouri Columbia, Missouri
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

PURPOSE: To assess the attitudes of senior high school principals and counselors in Indiana with regard to (1) the overall acceptance of industrial arts as a school subject; (2) selected areas of concern, such as purposes, subject matter content, methodology, students, industrial arts teachers, and relationship to other school subjects; (3) and to ascertain what relationships, if any, exist between their attitudes and selected personal and biographical background factors.

METHOD OF RESEARCH: Following standard and acceptable research procedures, a Likert-type attitude scale consisting of 45 opinion statements covering selected areas of concern in industrial arts and a personal biographical background information form were developed. The attitude scale and personal data form were sent to 474 principals and 436 counselors in the public senior high schools in the state of Indiana. The respondents were requested to indicate their opinion with respect to each statement by checking a weighted scale of strongly agree (5), agree (4), undecided (3), disagree (2), and strongly disagree (1). In addition, they were asked to provide biographical background information, such as age, sex, undergraduate major, experience and formal education. Attitudinal scores were obtained by totaling the weighted ratings of the respondents to the 45 items on the scale. The attitudes of principals and counselors with regard to the areas of concern were assessed in terms of percentages of agreement and disagreement with the items, and the mean item value of the statements rated on a scale consisting of categories of unfavorable (1.0 to 2.49), undecided (2.50 to 3.49), and favorable (3.50 to 5.00).

Statistical tests of significance at the .05 and .01 levels were made between the attitude scores of the respondents and selected personal characteristics and biographical items to ascertain the extent to which relationships, if any, existed.

SUMMARY AND FINDINGS:

(1) There was an overall markedly favorable attitude among principals and counselors toward industrial arts in Indiana's secondary schools.
(2) Principals and counselors strongly agreed with the objectives, expected educational outcomes, and tenets of industrial arts.
(3) Favorable attitudes toward industrial arts as a curriculum offering and the contribution it makes toward the attainment of the general objectives of the school were indicated by the respondents.
(4) Principals and counselors perceived industrial arts as a part of general education, not vocational in purpose, and that its supportive role to vocational and academic programs was beneficial to the student.
(5) A statistical significant positive relationship was found to exist between the attitudinal scores of principals and counselors and the size of their school enrollment, their undergraduate major, the extent of supervision of industrial arts in their school, and their exposure to and experience with industrial arts.

RECOMMENDATIONS:

(1) Industrial arts educators should promote a stronger and more effective coverage of occupational information since this aspect of industrial arts programs was perceived as weak or deficient.
(2) Industrial arts educators should strive to establish official supervision of industrial arts to some degree in all local programs in an effort to improve and promote their programs.
(3) Information concerning industrial arts purposes, goals, and benefits should be disseminated to teachers, principals, counselors, superintendents, and school board members.
(4) Measures should be given strong consideration to increasing the pre-vocational function of industrial arts on the eleventh and twelfth grade levels in the public secondary schools.
(5) The value, need, and techniques of good public relations should be stressed in professional courses in teacher education programs on the undergraduate and graduate levels.
(6) Efforts should be made to include instruction concerning aims, principles, and the nature of industrial arts in college programs for certification for principals and counselors.

Order No. 71-3359, 184 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Mattson (Last name), Homer (First name), Alphin (Middle name)

Exact Title A HISTORY OF FEDERALLY REIMBURSED TRADE AND INDUSTRIAL EDUCATION PROGRAMS OF THE OMAHA PUBLIC SCHOOLS, OMAHA, NEBRASKA 1917-1967

Degree granted Ed.D., Date 1970 No. of pages in report 166

Granted by The University of Nebraska (Name of institution) Lincoln, Nebraska (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to provide an historical account of the federally reimbursed day trade and industrial education programs of the Omaha Public Schools. The period of this study is 1917 to 1967, a fifty-year period beginning with the passage of the Smith-Hughes Act and concluding the year prior to the passage of the Vocational Education Amendment of 1968.

The national interest in vocational education has its origin in colonial times. The interest in the trade and industrial phase of vocational education can be found in the early apprenticeship programs, trade schools, corporation schools, and public schools.

Various commissions and interest groups provided support for vocational education. The support led finally to the passage of the Smith-Hughes Act of 1917, the first of the Acts of Congress providing Federal support for vocational education.

The State of Nebraska, in House Roll 800 (1917) accepted the conditions of the Smith-Hughes Act of 1917, appropriated funds, and created a State Board for Vocational Education. This action made possible the establishment of trade and industrial education courses in the Omaha Public Schools.

In addition to the day trade and industrial education program established in the Omaha Public Schools, an extensive program of industrial arts education was offered in the high schools of Omaha. The industrial arts program was not intended to prepare students for job entry, as was the day trade and industrial education program. It did, however, offer students an opportunity to learn about industry and to work with its tools, materials, and processes.

Manual training courses were established in the Omaha Public Schools as early as 1885. These courses were the forerunners of the currently offered programs of day trade and industrial education and the industrial arts. As such, the manual training courses represent the beginning of industrially related courses in the Omaha Public Schools.

Significant changes began to appear in the trade and industrial education programs in the Omaha Public Schools following the passage of the Vocational Education Act of 1963. It was now possible to provide for the special needs of youth, upgrade facilities, provide great ancillary services, financial assistance through work-study programs, and upgrade curriculum. This Act of Congress provided for the first major change in vocational education since 1917.

All reimbursable day trade and industrial education courses offered in the Omaha Public Schools were offered at Technical High School from 1923 until 1954, when South High School began offering reimbursable day trade and industrial education courses. By 1967, all high schools in Omaha were either offering, or had plans for offering, day trade and industrial education courses.

The significant trends were evident during the period of this study. There was a reduction in the amount of time an individual student spent in the shop. With this reduction in class time, it was possible for the student to add other subjects to his program of studies and thus obtain a better balanced program. A second trend was evident in a shift of emphasis from that which was aimed at providing trained manpower for an expanding economy to an emphasis on meeting the various needs of youth. Both trends were evident in the day trade and industrial education of the Omaha Public Schools.

Order No. 71-2909, 166 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Maxon (Last name), Lloyd (First name), Melvin (Middle name)

Exact Title THE RELATIONSHIP OF CERTAIN MENTAL FACTORS, READING FACTORS, APTITUDES, AND SITUATIONAL FACTORS TO ACHIEVEMENT IN SELECTED AIR FORCE TECHNICAL COURSES.

Degree granted Ed.D., Date 1970 No. of pages in report 130

Granted by North Texas State University (Name of institution) Denton, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The first problem of this study was to determine the relationship between training achievement in four Air Force civil engineering courses and mental ability as measured by the *Armed Forces Qualification Test;* reading rate, vocabulary, comprehension, and total comprehension as measured by the *Diagnostic Reading Test, Survey Section;* mechanical, general, administrative, and electronics aptitudes as measured by the *Airman Qualifying Examination;* dynamic motivational structures and derived factors as measured by the *Motivation Analysis Test* and eight situational factors. The second problem was to determine which combination of factors was most reliable in forecasting training achievement in each course.

The subjects of the study were 407 male airmen enrolled in electrical power production, refrigeration and air conditioning, corrosion control and electrician courses at a large Air Force technical training center. Mental ability, aptitude and final grade scores were obtained from official records. The reading and motivation tests and a *Situational Factors Questionnaire* were administered to each student.

Statistical data obtained from a step-wise multiple regressioncomputer analysis of the final grades and the thirty-two dependent variables included means, standard deviations, simple Pearson r correlations and intercorrelations, multiple R's, Student *t* values, Beta weights, and F values for each course. The 5 per cent level of significance was selected for acceptance of the twelve hypotheses formulated.

Relationships, significant at the 1 per cent level, were obtained for all four courses between final percentage grades and mental ability; general, administrative, mechanical, and electronics aptitudes; total comprehension, comprehension, and vocabulary; and the derived motivational factor general information-intelligence. Reading rate was significant at the 1 per cent level for three courses and 5 per cent level for the fourth course.

Education was significant at the 10 per cent level for two courses and at the 5 per cent level for the other two courses. Age, father's education, mother's education, and number of science courses completed since the eighth grade reached values significant at the 5 per cent level for two courses. The number of extra-curricular activities participated in since the eighth grade attained a value significant at the 5 per cent level for one course. The situational factors, number of brothers and sisters and vocational education courses completed since the eighth grade were non-significant.

The dynamic motivational structures career-sentiment, narcism-comfort, and sweetheart-spouse reached significant values for two courses. Home-parental sentiment, superego, mating, and assertiveness, reached significant values for one course. Fear and pugnacity-sadism did not attain significance for any course.

The derived motivational factors, total integration, total personal interest, and total conflict reached values significant at the 1 per cent level for three courses. General autism-optimism was significant at the 1 per cent level for two courses.

Significant multiple correlations were obtained for each course. Total reading comprehension was a significant contributor to the multiple correlation for all except the electrician course.

It was concluded that the *Armed Forces Qualification Test* does reflect the relative adaptability of otherwise qualified persons to learn to perform satisfactorily on military jobs and that the aptitudes measured by the *Airman Qualifying Examination* related significantly to success in the technical courses included in the study. It was also concluded that reading is important to successful completion of the Air Force technical courses included in the study and that situational factors, dynamic structure motivational factors, and derived motivational factors as measured by the *Motivation Analysis Test* related differentially to training achievement.

Order No. 71-562, 130 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author McCabe (Last name), Fred (First name), James (Middle name)

Exact Title A COMPARISON OF SELECTED PSYCHOLOGICAL, SOCIOLOGICAL, AND EDUCATIONAL CHARACTERISTICS OF OCCUPATIONAL, ACADEMIC, AND VOCATIONAL GROUPS.

Degree granted Ed.D., Date 1970 No. of pages in report 166

Granted by University Of Idaho (Name of institution) Moscow, Idaho (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study attempted to identify the unique characteristics from the data available in the cumulative record folders of three groups of male high school graduates, and to identify the similarities and differences among the groups.

The subjects for this study were 27 occupational workers (workers employed in the same line of work for one year after graduating from high school), 43 academic students (students attaining sophomore, junior or senior standing in a program leading to a baccalaureate degree in an Idaho state supported institution), and 41 vocational students (students completing at least nine months of a vocational program in an Idaho state supported institution).

The data were analyzed using one-way analysis of variance, *t* tests, Kruskal-Wallis one-way analysis of variance, Mann-Whitney *U*-tests and chi-square. Statistical tests were considered significant if the results reached the .05 level. Where appropriate, two-tailed tests were used.

Cumulative record folders were used to obtain the data on the subjects. All data in the folders were considered usable only when available for at least seven members of each of any two groups. All usable data were classified into one of three main categories: (1) psychological, (2) sociological, and (3) educational data.

Of the data classified psychological, academic students had significantly higher scores than either the vocational students or occupational workers on the Otis-Alpha intelligence test in grade four, the Pintner General Ability Test in grade five, the Otis-Beta intelligence test in grade seven; and in verbal reasoning, numerical reasoning, language usage—spelling, and the combined verbal-numerical scores on the Differential Aptitude Test. In addition, academic students scored significantly higher personality ratings than vocational students from teachers in social acceptability, industry, leadership, emotional stability, and dependability. No occupational workers were rated.

The data classified sociological were not significantly different among the three groups.

Of the data classified educational, academic students had significantly higher scores than either the vocational students or occupational workers in most subject matter areas after grade three. Occupational workers and vocational students had essentially the same level of performance.

On the basis of this study it is possible to identify the unique characteristics from the data available in cumulative record folders of occupational workers, academic students, and vocational students, and to identify the similarities and differences among the groups as early as the elementary grades.

Order No. 70-27,211, 166 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author McCracken (Last name), John (First name), David (Middle name)

Exact Title THE UTILIZATION OF INFORMATION BY STATE SUPERVISORY AND TEACHER EDUCATION PERSONNEL IN VOCATIONAL AND TECHNICAL EDUCATION.

Degree granted Ph.D., Date 1970 No. of pages in report 120

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

To investigate factors influencing the utilization of information for problem-solving, data were gathered from 230 of the 289 teacher educators and state supervisors from seven states to identify: (1) differences between teacher educators and state supervisors in their utilization of information, (2) relationships between frequency of literature source selection and perceived accessibility, ease of use, and technical content of, and degree of experience with literature sources, and (3) major sources of information used in solving work-related problems. Data were gathered by mail questionnaire and treated through a description of the sample, the method of paired comparisons, analysis of data presented in contingency tables, and multiple linear regression.

Teacher educators, when compared with state supervisors, were more likely to: use bibliographies, publications lists, theses and dissertations, indexes, and research reviews; conduct their own search for literature; read original research; search for literature outside the building where they work; utilize literature from educational institutions; and search impersonal sources of information. State supervisors, when compared to teacher educators, were more likely to: use policy papers and curriculum and teaching guides, have others assist in their search for literature, read summaries and interpretations of research, search for literature within the building where they work, utilize commercial sources of literature, and consult with associates within their organization. Collectively, teacher educators and state supervisors tended to: utilize journals and periodicals extensively, conduct their own literature search, read summaries and interpretations of research, utilize materials from educational institutions, use a library within their organization, and consult with personal sources in problem resolution. The groups did not differ significantly as to whether the library generally used was within or outside the organization for which they worked, or in their motivation for conducting literature searches.

The factors of accessibility, ease of use, and degree of experience were positively correlated with frequency of literature source selection in solving a work-related problem. Accessibility appeared to be the most potent variable for prediction of literature source utilization. Technical content was negatively correlated with frequency of use. A significant multiple correlation coefficient (R) of .986 and a coefficient of determination (R^2) of .972 between the independent variables and frequency of literature source utilization were obtained.

No significant relationship was found between work-related problems and literature sources used. Literature sources were used in the following order of frequency: (1) guidebooks, manuals, handbooks, (2) bibliographies, indexes, catalogs, (3) journals, newsletters, periodicals, (4) research reviews and interpretations, (5) theses, reports, monographs, and (6) books. Over 75 per cent of the literature searches resulted in information with which the user was satisfied. The stage in problem-solving in which literature was used most was in developing a background and definition of the problem.

Major recommendations suggested that additional emphasis be given to reviewing, summarizing, interpreting, and repackaging the knowledge base for user groups in vocational and technical education, and that information systems and products in vocational and technical education be more fully developed to improve their accessibility and ease of use.

Order No. 70-26,327, 120 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author McInnis (Last name), Donald (First name), Wallace (Middle name)

Exact Title AN APPRIASAL OF THE ORGANIZATION AND FUNCTION OF ADVISORY COMMITTEES IN COMMUNITY COLLEGE OCCUPATION EDUCATION IN THE STATE OF WASHINTON.

Degree granted Ed.D., Date 1971 No. of pages in report 124

Granted by Washington State University (Name of institution) Pullman, Washington (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine (1) the degree to which community college advisory committee members and occupational education instructors in the state of Washington agree with established concepts of advisory committee organization and function, and (2) the extent to which occupational education advisory committees in Washington community colleges practice established concepts of advisory committee organization and function. Related purposes were (a) to obtain demographic information regarding advisory committee members and occupational education instructors, and (b) to determine the correlation between level of agreement and extent of practice for each concept.

Basis for the study necessitated a search of the literature to determine established guidelines of advisory committee organization and function. Validity of statements obtained by this method was determined by submittal of a listing to a panel of experts. The 30 statements evaluated by the experts as best for use as a measure of current advisory committee role and function formed the basis for development of a data gathering instrument.

Advisory committee members serving occupational education programs in Washington community colleges, as well as community college occupational education instructors constituted the population for the survey. A random sample of 126 people was selected from both groups. Eighty-eight percent of this sample completed and returned a questionnaire.

The questionnaire was developed to allow the respondent to (1) indicate his level of agreement with a concept regarding advisory committee role and function, and (2) report the extent of practice of the concept within his local advisory committee. Two Likert scales were provided to facilitate quantification of data.

Two methods were utilized in the analysis of the data: (1) percentages were used to report responses to both demographic questions and organizational guidelines, and (2) a Pearson product-moment correlation was calculated between level of agreement and extent of practice for each guideline.

From an analysis of the responses, the following conclusions could be stated:

1. Advisory committees serving the state of Washington community colleges are comprised of citizens well informed and in agreement with established guidelines of advisory committee organization and function.
2. Washington community college advisory committees are not practicing established organizational concepts to the extent that lay citizens and occupational educators involved with the committees support the concepts.
3. Community college administrative support is minimal in advisory committee organization and function. Low to moderate correlation between high level of agreement and extent of practice was obtained where action on the part of a college administrator was an essential ingredient in the disposition of the guideline.

Order No. 71-18,581, 124 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author McKell (Last name), William (First name), Ellsworth (Middle name)

Exact Title READING ABILITIES OF VOCATIONAL TRADE AND INDUSTRIAL EDUCATION STUDENTS IN GRANITE SCHOOL DISTRICT RELATIVE TO READABILITY LEVEL OF TEXTBOOKS.

Degree granted Ed.D., Date 1970 No. of pages in report 138

Granted by Utah State University (Name of institution) Logan, Utah (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The reading abilities of trade and industrial education students enrolled in the six trade and industrial education courses of automotive mechanics, building construction, drafting, electronics, machine shop, and welding in the six high schools of Granite Schools District were studied in relation to the rated readability of basic textbooks used in those courses. Additional relationships were studied between student reading abilities and intelligence, between course grades and intelligence, and between course grades and reading abilities.

The mean reading ability of the 388 trade and industrial education students included in the study assessed by administering the California Reading Test for grades nine through 14, was found to be 10.8 for the eleventh grade students, 11.1 for the twelfth grade students, and 11.0 for all students included in the study. These abilities ranged from grade six to grade 15. Electronics students had the highest average reading ability measured at 12.4, while the average welding student was reading at grade 10.3. There were 54.4 percent or 87 eleventh grade students reading below their assigned grade level and 60.1 percent or 137 twelfth grade students reading below their assigned grade level. Little relationship was found between average student grades and their intelligence quotients, or between average student grades and reading level, while the correlation between intelligence quotient and average reading ability was relatively high.

The rated readability of basic textbooks used by the students in the six courses was obtained through the application of both the Dale-Chall, and the SMOG formulas. A significant difference was found between the average reading ability of students and the readability of the basic textbook they were using. Reading abilities of average students in automotive mechanics, electronics, and welding courses were below the rated readability of the corresponding textbooks. Reading abilities of average students in building construction, drafting, and machine shop courses were above the rated readability of each of the corresponding textbooks.

The following conclusions were drawn from the data analyzed in the study:

1. The reading grade level of students in trade and industrial education courses is more important as a factor in determining a suitable level of readability for a basic textbook than the usual criterion of the assigned grade level of a course or a student's grade placement.
2. A basic textbook should have the capacity to interest the more able students as well as the slower readers.
3. More effort must be expended to help less able readers understand and relate the vocabulary of a technical type course.
4. Teachers should take into consideration the individual reading ability of students in planning their instruction rather than assume all students to be reading at grade level.
5. Of the factors used in assessing the rated readability of textbooks, vocabulary was more important than sentence length.
6. None of the basic textbooks analyzed exhibited a progression of reading difficulty from easy material at the beginning of the textbook to more difficult material towards the end of the textbook.
7. Although there was a wide variation in the mental abilities of students, generally students with high mental ability had a high reading ability.
8. The results of applying a one-way analysis of variance to student reading data from two of the courses, building construction and electronics, which were taught in all six high schools, indicated the reading grade level of students was not affected by the geographical area in which the student resided.

Order No. 70-27,010, 138 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author McKenzie (Last name), Charles (First name), Ray (Middle name)

Exact Title A COMPARISON OF SUCCESS IN ACADEMIC FOUNDATION COLLEGE COURSES BETWEEN STUDENTS PRESENTING HIGH SCHOOL CREDITS IN PRACTICAL ARTS COURSES AND THOSE WITH CREDITS IN ACADEMIC COURSES.

Degree granted Ed.D., Date 1971 No. of pages in report 110

Granted by North Texas State University (Name of institution) Denton, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study investigated the relationship of high school curriculum to performance in academic foundation college courses. The purposes of the study were twofold: First, to study the relationship of a practical arts high school curriculum as opposed to a college preparatory high school curriculum to performance in academic foundation college courses. Second, to analyze this relationship and its implications for high school students, parents, teachers, and counselors.

A sample of 371 students from the 1967 freshman classes at East Texas State University, North Texas State University, and Stephen F. Austin State University was randomly selected. Students were classified into one of three groups on the basis of the number of non-required high school units in the academic and practical arts areas presented for college entrance. Academic students presented three or more academic units and no more than one practical arts unit. Dualistic students presented two or more academic units and two or more practical arts units. Practical arts students presented three or more practical arts units and no more than one academic unit.

Groups were compared through covariant analysis of adjusted mean grade-point averages in academic foundation college courses. Students' ACT composite scores were used as the control variable.

The content of this study is arranged into five chapters. The first chapter includes an introduction, statement of the problem, purpose of the study, definitions, assumptions, and limitations of the study. Chapter II reviews the related literature, while Chapter III discusses the methods and procedures of the study. The fourth chapter contains an analysis of the data with the statistical treatment presented in tabular form. Chapter V presents a summary of the study and the findings, conclusions, implications, and recommendations.

It was hypothesized that the academic group would achieve a significantly higher adjusted mean grade-point average in academic foundation college courses than would either of the other two groups. It was further hypothesized that the dualistic group would achieve a significantly higher adjusted mean grade-point average than would the practical arts group.

The analysis of covariance produced an F value of .8128, which was far short of the tabled F value of 3.00 required at the .05 level of confidence. Therefore, the hypotheses were all rejected. Although not statistically significant, the difference found favored those students with a dualistic background.

A significant correlation between ACT composite scores and grade-point average was found for all groups. However, these scores were found to be much more predictive of college performance for dualistic students than for practical arts students. The coefficient of correlation for academic students fell between those for the other two groups.

As a result of this study, it was recommended that high school teachers and counselors avoid recommending a course of study consisting entirely of either academic or practical arts courses as being best for all students who plan to attend college. High school curricula should be comprehensive enough to meet individual needs and flexible enough to allow for articulation into other programs should the student so desire.

College admissions directors should be wary of strict cut-off points based solely upon standardized test scores, since ACT scores are less predictive for practical arts students. Further studies in this area were also recommended.

Order No. 71-25,370, 110 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author McNamara (Last name), James (First name), Francis (Middle name)

Exact Title A MATHEMATICAL PROGRAMMING MODEL FOR THE EFFICIENT ALLOCATION OF VOCATIONAL-TECHNICAL EDUCATION FUNDS BY STATE EDUCATION AGENCIES TO LOCAL SCHOOL DISTRICTS.

Degree granted Ph.D., Date 1970 No. of pages in report 130

Granted by The Pennsylvania STate University (Name of institution) University Park, Pennsylvania (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to develop a mathematical programming model which provided a State Education Agency with new information to evaluate decisions about the efficient allocation of vocational education funds to local school districts. Specifically, the model was designed to provide a method for examining the long term consequences of alternative strategies that the decision-maker may wish to implement in the state system.

The model was developed in keeping with the guidelines for a Program-Planning-Budgeting System which force the decision-maker to focus on inputs and outputs rather than inputs alone, to assure the decision-maker a choice of valid comparable alternatives, and to build a dimension over time that tries to see today's decisions in terms of their longer term consequences.

The model was applied to a selected set of vocational-technical education programs in the Philadelphia, Pennsylvania Labor Market Area. This application demonstrated that the model formulated a generalizable procedure that could be applied by a State Education Agency to any labor market.

Another property of the model was that it used data which currently exist in different state government agencies. Research has shown such data have been used in the past few years almost exclusively for accounting and reporting purposes. The model demonstrated how these statistics collected by state government agencies such as Department of Commerce, Department of Labor and Department of Education can be more effectively utilized to improve state-local program planning in vocational education.

In addition, types of vocational program planning information that would increase the efficiency of cost-effectiveness measurement were outlined. A brief discussion of other mathematical programming techniques that could be used in educational planning models was also presented. These techniques included convex programming, chance-constrained programming, the method of certainty equivalence and other stochastic programming approaches.

Order No. 71-6337, 130 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Miller, Jack, Dean
(Last name) (First name) (Middle name)

Exact Title A FACTOR ANALYSIS OF PROFESSIONAL EDUCATION COMPETENCIES AND SELECTED COMMUNITY COLLEGE INSTRUCTORS.

Degree granted Ed.D., Date 1971 No. of pages in report 106

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The Purpose of the Study

The central purpose of this study was to determine the professional education competencies of selected community college vocational instructors. Respondents in the study included instructors of business and distributive education. Major dimensions were: the construction and validation of a questionnaire for community college vocational instructors; the analysis of data to determine if there were differences among the community colleges in their responses to the competencies contained in the questionnaire; a factor analysis of the professional education competencies and the community college respondents; and the formulation of implications to be considered in the development of teacher education curriculums.

The Procedures

The construction and validation of the instructor questionnaire was accomplished through a review of the literature, an evaluation by a jury of experts, and a field test. A mail survey questionnaire containing 99 professional education competencies together with a five-point Likert-type scale was used to gather data. The dependent variable was the score judgmentally assigned by respondents to denote the level of proficiency they felt was necessary for each of the 99 competencies.

The study's population utilized the four western states of California, Colorado, Oregon, and Washington and was representative of business and distributive education instructors at the community college level. A random sample of 160 instructors provided data for the study.

The Data

The F statistic was used to analyze contrasts between the mean scores for each competency with the .01 level of significance being used to determine differences existing between the community colleges. A test of Least Significant Difference was used to determine where specific differences existed between means of community colleges which were rejected in the analysis of variance tests.

Further analysis of the data was accomplished through the use of two factor analytic techniques, the Q-technique and the R-technique. The Q-technique ordered respondents according to the 99 competencies included in the study. The R-technique was used to cluster competencies according to respondents. Factors and subfactor names were assigned after the data were analyzed.

Selected Findings

Generally, the analysis of variance tests indicated that the community colleges were alike in their responses to the competencies contained in the questionnaire. The factor analysis of data revealed that the business and distributive education instructors resembled one another in their responses and demonstrated that it is possible to generate factors containing clusters of common professional education competencies. Competencies which clustered under the factors of *Instructional Management* and *Teaching-Learning Process* were judged by instructors to require the highest level of proficiency. In all, respondents indicated that 91 of the 99 professional education competencies required a moderate or higher level of proficiency in the performance of their job.

Order No. 71-25,069, 106 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Miller, James, Arthur
(Last name) (First name) (Middle name)

Exact Title FUNCTIONAL COMPETENCIES NEEDED BY INDUSTRIAL ARTS INSTRUCTORS TO ADEQUATELY PERFORM IN CONTEMPORARY INDUSTRIAL ARTS LABORATORY/ CLASSROOMS.

Degree granted Ed.D., Date 1971 No. of pages in report 217

Granted by University of Northern Colorado Greeley, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

It was the primary purpose of this study to identify functional competencies needed by instructors who teach in contemporary industrial arts programs and to rank these competencies in order of importance.

Procedure

After the list of 75 functional competencies had been identified and evaluated by a jury, an opinionaire composed of these competencies was sent to 560 industrial arts teacher educators and supervisors throughout the United States, Canada, and the District of Columbia. Each competency in the opinionaire could be checked for one of five values ranging from "most important" to "of no importance." The rank order of the competencies was determined by the mean value of importance for each competency. This procedure was followed for both teacher educators and supervisors.

The data collected were reported in both tabular and parenthetical form. Agreement or disagreement shown by the population was classified by the arithmetic means, rank orders, and percentages. Also, the functional competencies were graphically presented in rank order under six established categories for both groups. Spearman's coefficient of rank correlation

$$p = 1 - \frac{6 X \Sigma d^2}{N(N^2-1)}$$

was used to calculate the correlation.

A total of 438, or 78.2 per cent, of the returns were considered usable for this study.

Pertinent Findings

1. Close agreement existed between industrial arts supervisors and teacher educators concerning the rank order of importance for the functional competencies identified in this study. The Spearman's rank correlation coefficients of 0.980 (highest) and 0.881 (lowest) for the competencies as ranked by the two groups under the six identified categories illustrates this close agreement.
2. Teacher educators and supervisors strongly agreed that competencies related to the area of personal qualities and behavioral characteristics are in general the most important competencies needed by the functionally competent instructor.
3. Teacher educators and supervisors agreed that functional competencies pertaining to teaching methods and techniques are more important than those pertaining to course content and related information.
4. Supervisors and teacher educators agreed that it was more important that the functionally competent instructor be able to inform students of employment opportunities and needs of industry than it was for him to relate course content to leisure time activities.
5. Teacher educators and supervisors indicated that it was important that the functionally competent instructor spend time in the organization and initiation of group projects and mass production units, but his ability to provide situations which allow students to think and work independently and develop creative talents was of greater importance.

Selected Conclusions

1. The functional competencies identified in this study can be used effectively to aid industrial arts teachers, teacher educators, and supervisors in the identification and selection of important competencies needed to adequately perform in contemporary industrial arts laboratory/classrooms.
2. Competencies pertaining to personal qualities and behavioral characteristics should be stressed above all others in teacher training programs. There should be valid methods and techniques devised to help screen prospective industrial arts instructors in order to determine if they possess these important personal qualities and characteristics.
3. It is important that the functionally competent instructor spend some time in organizing group projects and mass production units, but the majority of his instructional time should be spent in providing situations which allow students to think and work independently in an environment conducive to the development of creative abilities.

Recommendations

1. A study concerned with the feasibility of developing competency tests based upon identified functional competencies should be conducted.
2. A similar study should be conducted which compares the responses of the teacher educators and supervisors identified in this study to those of industrial arts teachers in public secondary schools.

Order No. 71-26,828, 217 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Monroe, Allen, Lathem
(Last name) (First name) (Middle name)

Exact Title A STUDY OF SUPPORTIVE AND NON-SUPPORTIVE VOTER RESPONSE WITHIN A SPATIAL CONTEXT TO THE CREATION OF A JOINT VOCATIONAL SCHOOL IN OHIO.

Degree granted Ph.D., Date 1970 No. of pages in report 148

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of the study was to analyze voter response over several elections toward the creation of a joint vocational school in Greene County, Ohio. Voter attitudes within an urban-rural context toward both an enacting bond issue and an operating tax levy were investigated utilizing electoral data. The following factors were thought to be significant in assessing a favorable or unfavorable voter response to the bond issue and tax levy questions: the type of election (General or Primary) where the issues appeared, the voter turnout within each precinct and between each election, the partisan affiliation of the voters, and the urban-rural pattern of voting.

In addition, a sample survey of the electorate was conducted after the creation of the joint vocational school to further assess favorable and unfavorable attitudes of the voters. The sample survey analyzed supportive and non-supportive attitudes of the respondents in relationship to the following variables: length of residence in the county, age, sex, race, educational level, familiarity with the joint vocational school, and possible future vote on an additional operating levy.

The voter data was subjected to analysis by various statistical techniques. Measures of central tendency and dispersion, correlation and regression analysis, chi square analysis, and analysis of variance tests were employed to ascertain whether the hypotheses should be accepted or rejected.

It was felt that supportive attitudes toward the joint vocational school could be explained by several or all of the assumptions listed below.

1. Elections that attract few voters to the polls will produce a higher support ratio for such issues as a joint vocational school than will elections that appeal to a greater number of voters. 2. Precincts that have a higher number of Democrat voters are more likely to support school bond issues and school tax levies than are non-Democrat precincts. 3. Support for school bond issues and school tax levies will be stronger in areas classified urban than in those designated non-urban or rural. 4. The sample survey will reflect a stronger supportive attitude for the joint vocational school than indicated by the actual vote on the bond issue and tax levies.

On the basis of this study it can be claimed that a low turnout on the issues was related to a supportive vote for the vocational school. However, linear regression analysis demonstrates that increased turnout in the precincts was not a predictor of increased supportive vote within the precincts. Correlation and regression analysis indicates that partisanship was not related to a supportive stance on the vocational school. The null hypothesis that there would be no significant difference between urban and rural voters was rejected. The only factor that proved to be significant in predicting success at the polls for the vocational school was found by correlating urban precincts with a supportive vote (or rural areas with a non-supportive vote). The evidence presented in the analysis of the survey data indicated that the respondents surveyed were much more supportive of the school than the results from the electoral data. Order No. 71-7521, 148 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Moore, Leland, B.
(Last name) (First name) (Middle name)

Exact Title PREDICTING LEVELS OF SUCCESS IN BACCALAUREATE TECHNOLOGY CURRICULUMS.

Degree granted Ph.D., Date 1970 No. of pages in report 205

Granted by Southern Illinois University Carbondale, Illinois
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Data were collected from contemporary baccalaureate technology programs to test two hypotheses. The hypotheses are directed toward answering the following questions: (1) Are the Scholastic Aptitude Test scores and high-school-ranks of the individuals included in this study significant predictors of the achievement level of the individuals at graduation from the baccalaureate program in technology? (2) In what quantitative form may the data be used to predict the level of achievement of the enrollee? (3) Are correlations between grade-point-average in technology and Scholastic Aptitude Test scores curvilinear?

The data were collected from two universities which have conducted modern baccalaureate level technology programs for several years. One of the universities is a large public Mid-Western institution, whereas, the other is a medium sized private Mid-Western university. The combined final sample from the two universities consisted of 160 individuals. Each individual in the final sample had complete data, including over-all grade-point-average for all work that contributed to the baccalaureate degree, the high school rank, the verbal score on the Scholastic Aptitude Test, the quantitative score on the Scholastic Aptitude Test, and adequate course profiles to permit calculation of a grade-point-average in technology per se.

To answer multidimensional questions concerning non-linear functions of the Scholastic Aptitude Test scores, 42 additional variables were generated. Computer techniques of multiple analysis were used to construct statistical models to test specific questions.

Results: The most salient result of this study was the great difference between correlations using the grade-point-average in technology and correlations using the over-all-grade-point-average. Where the grade-point-average in technology was used as the criterion, the R^2's relating grade-point-average with SAT scores and high-school-rank were consistently low. But where the criterion was the over-all-grade-point-average, the R^2's ran from approximately .50 to .58. These data lead to the conclusion that the classical predictors of grade-point-averages are not highly effective in predicting student's success in technology curriculums in the universities studied.

The 49 variables were optimized to find the most parsimonious set of predictors for the grade-point-average in technology. This analysis resulted in an equation containing only the quantitative score on the Scholastic Aptitude Test, SATM. However, the relationship between the SATM and the criterion, grade-point-average, was non-linear. In fact, the equation indicates that students in technology at University "A" who scored low on the quantitative section of the Scholastic Aptitude Tests do as well in the technology courses as students who have high SATM scores; whereas students who scored moderately, 450-500, on the SATM achieved poorly in technology. (The R^2 for this equation was .17).

The study also included optimizing the 49 variables to determine the most parsimonious set of predictors for the over-all grade-point-average. This analysis yielded an equation containing only the linear form of the verbal section of the Scholastic Aptitude Test, SATV. (This equation resulted in an R^2 of .52.)

The author suggests five hypotheses for explaining the low R^2's between the grade-point-averages in technology courses and the classical predictors.

Order No. 71-10,036, 205 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Moreland, Henry, Clifford Jr.
(Last name) (First name) (Middle name)

Exact Title A FOLLOW-UP STUDY OF RECIPIENTS OF THE DOCTOR OF EDUCATION DEGREE IN INDUSTRIAL ARTS EDUCATION FROM COLORADO STATE COLLEGE

Degree granted Ed.D., Date 1970 No. of pages in report 129

Granted by University of Northern Colorado Greeley, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Statement of the Problem

This follow-up study was designed to collect information from the graduates of Colorado State College[1] with the degree of Doctor of Education in industrial arts education. The primary purpose of the study was to solicit answers and opinions from these graduates to determine the effectiveness of the doctoral program in preparing them to function in their current positions. The study covered the graduates' backgrounds, the graduates' views concerning their doctoral training in light of their professional responsibilities, and the graduates' suggestions and recommendations for the improvement of the doctoral program.

Method of Study

A questionnaire was developed and utilized to gather the information needed. The questionnaire was sent to the fifty-two graduates presently living in the United States who had received their degrees during the years 1960-1968, inclusive. The data presented in this investigation were based on the responses of fifty, or 96.1 per cent, of the fifty-two graduates to be studied.

Selected Findings of the Study

1. All of the respondents had some type of professional or educational experience prior to receiving the doctorate.
2. A majority, or 60 per cent, of the respondents reported having worked in industry prior to receiving their doctorate.
3. The reputation of the industrial arts department was the most frequently reported reason for the respondents having chosen Colorado State College for their doctoral work.
4. A majority, or 70 per cent, of the respondents reported that they took one or more technical courses as a part of their doctoral program.
5. The respondents evaluated their doctoral coursework quite favorably.
6. A large majority, or 90 per cent of the respondents considered their doctoral supporting area to be valuable with respect to their present positions.
7. Eighty-four per cent of the respondents reported that they were well prepared by their doctoral program for their present responsibilities.
8. Almost all, or 98 per cent, of the respondents indicated that if the decision were necessary, they would still choose to pursue the doctor's degree. Sixty-eight per cent reported that they would again choose the doctoral program at Colorado State College.

Conclusions

1. The majority of the graduates were well pleased with the doctoral program in industrial arts at Colorado State College and with the preparation they received from the program.
2. The philosophical scope of the department and the doctoral program was somewhat limited to industrial arts.
3. The policy of allowing doctoral credit for technical courses should most definitely be continued.
4. In general, the doctoral advisers in industrial arts were well qualified and competent, but their time for assisting the doctoral advisee was too limited because of other activities and responsibilities.
5. The great majority of the doctoral graduates entered positions in the field of higher education, and a rather significant number assumed administrative responsibilities.
6. In general, the industrial arts graduate faculty was an excellent faculty and possessed the traits deemed desirable to perform in this capacity.
7. As the graduates viewed their total doctoral program experiences in retrospect, they considered their associations with other doctoral students and their associations with the faculty as the most valuable aspect of their doctoral program.

Order No. 71-4202, 129 pages.

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[1] The name of Colorado State College was officially changed to University of Northern Colorado on May 1, 1970.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Mosley (Last name), Samuel (First name), Napoleon (Middle name)

Exact Title THE GOALS OF THE INDUSTRIAL ARTS CURRICULUM IN THE MIDDLE SCHOOLS AS PERCEIVED BY SELECTED FLORIDA EDUCATORS.

Degree granted Ph.D., Date 1970 No. of pages in report 154

Granted by The Florida State University (Name of institution) Tallahassee, Florida (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study compared the Q-sort responses of industrial arts teachers, supervisors of industrial arts, principals, and counselors in the middle schools of Florida to determine if there was agreement as to the role of industrial arts in the general education of boys and girls in middle schools.

The sorting of the four occupational area groups was analyzed and further studied for areas of agreement in the following four categories: (1) years of experience, (2) degree(s) held, (3) industrial arts courses in secondary school education, and (4) sex.

Methods and Procedures

A jury of educational leaders in industrial arts selected fifty-two behavioral statements related to eleven predetermined objectives for an industrial arts program in middle schools. A packet of materials was sent to one hundred fifty-six people involved in middle school programs in Florida. These participants were asked to rank the 52 behavioral statements found in the packet, according to importance in describing the desired behavioral changes for students in their industrial arts classes. Values of one to nine were assigned to the responses which allowed for calculation of a numerical mean. These means were then compiled to give a composite mean.

Statistical computations were done in the computer center at Florida State University. The research hypothesis was tested by using Kendall's Coefficient of Concordance (W) to determine the degree of agreement existing between the ordering of the statements by the four groups. The chi square median test, computed at the computing center, Florida State University, also served to determine the degree of agreement existing between the orderings of the four groups.

Findings

A majority of the participants ranked as most important those statements which dealt with safe practices, skillful use of tools and materials, and work related to projects. This may indicate that while there is wide acceptance of industrial arts as an important part of the middle school curriculum those working with the middle schools in Florida remain oriented toward the traditional industrial arts curriculum.

Based upon Kendall's Coefficient of Concordance and the chi square test it was found that a significant agreement existed between the orderings of the groups at the .05 level of significance. The Pearson product-moment correlation coefficient suggested the existence of agreement between (1) industrial arts teachers and supervisors of industrial arts, and (2) industrial arts teachers and principals when ordering industrial arts objectives. The ordering of objectives by industrial arts teachers and counselors displayed no agreement at the .05 level of significance.

Implications

Educators appear to agree that industrial arts will continue to play an important role in the general education of boys and girls during the middle school years. From this study it would appear that there is need for increased understanding and communications between the four groups of educators included. Where there seems to be little agreement, however, is in the method with which this will be accomplished. The study reports a need for improvement in the development of consistant educational philosophy, internal communications, and sound operating policies regarding industrial arts in middle school programs. If these areas are not given new leadership and corrected through imaginative organizational schema, conflict and goal displacement may result.

Order No. 71-7076, 154 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Mund (Last name), Richard (First name), Gordon (Middle name)

Exact Title A COMPARISON OF TRANSFER, VOCATIONAL, AND CONTINUING ADULT STUDENTS' REACTIONS TO THEIR COLLEGE EXPERIENCE IN TEN COLORADO PUBLIC TWO-YEAR COLLEGES.

Degree granted Ph.D., Date 1970 No. of pages in report 137

Granted by University of Denver (Name of institution) Denver, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The Problem

The major purpose of the study was to determine student reactions in terms of satisfactions and dissatisfactions to various aspects of their college experience. More specifically, an effort was made to determine whether or not there were significant differences in the reactions to the two-year college experience by three basic groups of students: transfer oriented students, vocationally oriented students, and continuing adult students.

As a logical extension of the major problem, to determine student reactions to the junior college experience, an effort was made to examine the following related questions:

1. What factors are influential in the decision to attend a junior college?
2. Do students avail themselves of what is often considered the unique opportunity provided by the two-year colleges of finding out which type of postsecondary education is most appropriate for them?
3. Who among the two-year college staffs guide or counsel the students through their educational programs?

The Procedure

In order to gather the data necessary for the study, a questionnaire was developed using comments from authorities in the field and similar instruments as guidelines. The instrument was then pretested in a pilot study to determine its reliability and utility.

A final study was undertaken in which 1,357 usable instruments were returned from a stratified, proportionate, random, cluster sample of 1,376 students in 10 of the 11 public two-year colleges in the state of Colorado.

The conclusions of the study were based upon the data gathered.

Conclusions

1. Some students do appear to attempt to find an educational program suited to their abilities and/or interests by attempting various types of educational programs offered by the two-year colleges.

2. In their overall reactions to the two-year college experience, all three groups of students (transfer, vocational, and continuing adult students) are favorably disposed. Vocational students are significantly more satisfied with their overall college experience than either the transfer students or the continuing adult students.

3. Areas of dissatisfaction with the two-year college experience are the social life and extra-curricular activities available on campus and the selection of courses offered by the colleges.

4. Parents, friends, high school counselors, and high school teachers appear to be the persons from whom two-year college students most often receive assistance in deciding to attend college as well as in making the decision to attend the junior college instead of a four-year college or university.

5. Better than half of the two-year college students do not appear to receive assistance in deciding to attend college or in deciding to attend the two-year college instead of the four-year institution.

6. Specific considerations of varying importance to transfer, vocational, and continuing adult students which affect the decision of whether or not to attend a junior college are the following: the closeness of the college to the student's home, financing the education, the reputation of the college, particular educational programs offered by the college, the facilities of the college, the student's feeling of his ability to do college level work, and the fact that the student needed a good grade point average in order to transfer to a four-year institution.

7. Two-year college teachers acting as advisors and guidance counselors appear to be the persons who most often counsel or advise students regarding their educational programs.

Order No. 71-5373, 137 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Nannay (Last name), Robert (First name), William (Middle name)

Exact Title THE EFFECTIVENESS OF TEACHING A PSYCHOMOTOR TASK VIA FORWARD AND BACKWARD CHAINING

Degree granted Ed.D., Date 1970 No. of pages in report 168

Granted by University of Maryland (Name of institution) College Park, Maryland (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of Study:

This study tested the effectiveness of teaching a psychomotor task via forward chaining and backward chaining in an industrial education setting. The purpose of this study was to obtain research data regarding the learning condition of chaining. Since it has been recognized that behavioral chains may be acquired by an individual in either a forward or backward manner, a major aim of this study was to discover the relative effectiveness of these two procedures.

The one-way analysis of variance and the factorial analysis of variance were utilized to test the null hypotheses and to analyze the data. Duncan's New Multiple Range Test was used to locate significant F ratios. All hypotheses were tested at the .05 level of significance.

Three treatment groups participated in the experiment. They included: 1) Treatment A—forward chaining, 2) Treatment B—backward chaining, and 3) Treatment C—control. Since a manipulative task was utilized in the experiment, it was felt that one's manual dexterity would skew the test results. In an endeavor to control this variable the subjects were placed in a high or low manual ability level. *The MacQuarrie Test for Mechanical Ability* (MTMA) was used to determine the manipulative abilities possessed by the available population.

The forward chaining group and the backward chaining group received a slide-tape presentation, a performance test, an objective test, and a two-week retention test. The control group received no instruction and all the criterion measures. The behavioral chain which was selected for the experiment dealt with the procedure of placing a dado head (two dado blades, two chippers, an arbor collar, and an arbor nut) on the radial arm saw.

Two measuring devices were utilized in this study. A manipulative test was developed to ascertain the achievement of the specified behavioral chain. The amount of cognitive growth experienced by a subject while viewing the slide-tape sequence and executing the manupulative criterion test was determined by an objective test. In addition, data was also collected on the amount of time required to perform the behavioral chain. The findings of this study were as follows:

Initial Testing. On the performance test, a significant F ratio was obtained for the treatment effect. A multiple range test indicated that Treatments A and B were significantly superior to Treatment C. However, no significance existed between Treatment A and Treatment B. An insignificant F ratio was observed for the levels effect and the interaction effect. Furthermore, the one-way analysis of variance was applied to the amount of time needed by each subject to execute the psychomotor task and to the objective test data. An insignificant F ratio was discovered on the time data. A significant F ratio was observed on the results of the objective test. The multiple range test indicated that the differences between Treatment A and Treatment B were not significant. However, both treatment groups were significantly different from Treatment C.

Two-Week Retention. The statistical techniques utilized on the initial testing data were repeated on the retention test scores. The findings were similar to those obtained on the initial testing session.

Conclusions. The following conclusions were made after analyzing the experimental findings.

Hypothesis 1. There was no difference in initial learning between the treatment groups as measured by the manipulative criterion test administered following instruction.

A significant F ratio was calculated. It was concluded that Hypothesis 1 was not supported by the data.

Hypothesis 2. There was no difference in initial learning between the levels of the treatment groups as measured by the manipulative criterion test administered following instruction.

A factorial analysis of variance yielded an insignificant F ratio. Hypothesis 2 was supported by the data.

Hypothesis 3. There was no interaction between ability levels and treatment as indicated by the manipulative criterion test scores immediately following instruction.

An insignificant F ratio was obtained. Hypothesis 3 was supported by the data.

Hypothesis 4. There was no difference between the treatment groups in the amount of time needed to complete the manipulative criterion test following instruction.

An insignificant F ratio was observed. Hypothesis 4 was supported by the data.

Hypothesis 5. There was no difference in initial learning between the treatment groups as measured by the objective test administered following instruction.

A one-way analysis of variance yielded a significant F ratio. Consequently, Hypothesis 5 was not supported by the data.

Hypothesis 6. There was no difference in retention between the treatment groups as measured by the manipulative criterion test.

A significant F ratio was observed. Hypothesis 6 was not supported.

Hypothesis 7. There was no difference in retention between the levels of the treatment groups as measured by the manipulative criterion test.

The factorial analysis of variance yielded an insignificant ratio. Hypothesis 7 was supported by the data.

Hypothesis 8. There was no interaction between ability levels and the treatment as indicated by the manipulative criterion test scores on the retention test.

An insignificant result was obtained. Thus, Hypothesis 8 was supported by the data.

Hypothesis 9. There was no difference between the treatment groups in the amount of time needed to complete the retention test.

An insignificant F ratio was computed. Hypothesis 9 was supported by the data.

Hypothesis 10. There was no difference in retention between the treatment groups as measured by the objective test.

A one-way analysis of variance yielded a significant F ratio. Thus Hypothesis 10 was not supported by the data.

Order No. 71-4050, 168 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Nienhaus, Bernard, Joseph
(Last name) (First name) (Middle name)

Exact Title JOB PATTERNS OF SELECTED GRADUATES OF THE SECONDARY VOCATIONAL CURRICULUM

Degree granted Ph.D., Date 1971 No. of pages in report 235

Granted by University of Wisconsin Madison, Wisconsin
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this investigation was to determine what, if any, selected variables predicted occupational area and occupational level for graduates of the secondary vocational curriculum. The sample consisted of 176 students who graduated from Wisconsin high schools in 1966. Twenty-three males were chosen by their vocational education teachers as highly employable. Twenty-seven males were chosen as marginally employable. Seventy-six girls were chosen as highly employable. Fifty girls were chosen as marginally employable. I. Q. scores, achievement test scores, and cumulative grades were available for all subjects.

Achievement pattern was used as a predictor variable. It was expected that certain patterns would be predictive of occupational area.

In 1966 all subjects filled out a questionnaire in which they reported the job they would prefer after high school. They also reported what salaries they aspired to, how far they would be willing to move to get a satisfying job, what they expected to be the source of their satisfactions at work and in their lives in general. They also rated themselves on ten qualities, and reported the size of the community in which they were raised.

In 1968, by means of another questionnaire, the subjects reported what jobs they actually were holding, and what was the main source of their satisfaction at work.

The jobs preferred and actually held were classified according to the data-people-things hierarchy in the *Dictionary of Occupational Titles*. The total of the numbers in columns 4, 5 and 6 was taken to be a designation of job level. The lower the total, the more responsibility was considered to be associated with the job. Level scores ranged from 9 to 23. The lowest number in columns 4, 5 and 6 was taken to designate the occupational area.

Because of sample bias and normality of the distribution not legitimately being assumed, distribution free chi-square was used to analyze the data.

Sex was found to be a predictor of preferred occupational area and area of actual employment. Males preferred and worked in the thing-area. Females preferred and worked in the data-area. Females preferred and worked in the people-area with greater frequency than did males but the number of females was small.

Sex was found to be a predictor of occupational level. Males preferred and were employed in more responsible jobs than females.

Teacher employability rating was found to be a predictor of occupational area. Girls rated marginally employable were actually employed in the thing-area with significantly greater frequency than were girls rated highly employable.

Teacher employability rating was a predictor of occupational consistency. Highly employable subjects, especially girls, were actually employed in jobs in accord with their preferences than were low-employable subjects.

Pattern of achievement test scores was predictive of job actually taken. Those subjects who scored high in mathematics and low in reading were employed in the thing-area with greater frequency than those with any other achievement pattern.

Pattern of achievement test scores was contingent with area of job preferred. Community size, salary aspiration, and willingness to move were contingent with level of job preferred, but the probabilities of the distributions in each case did not reach the chosen level of significance.

Self-esteem ratings were found to be contingent with teacher employability ratings, but not contingent with occupational level.

Order No. 71-20,683, 235 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Norton (Last name), Elizabeth (First name), Noel (Middle name)

Exact Title AN EVALUATION OF THE ACADEMIC SUCCESS OF THE 1966 AND 1967 PRE-TECHNICAL GRADUATES AT THREE PUBLIC COMMUNITY COLLEGES OF THE UNIVERSITY OF New York.

Degree granted Ed.D., Date 1970 No. of pages in report 159

Granted by Columbia University (Name of institution) New York, New York (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study evaluated the academic success at three public community colleges of 117 graduates who completed the Pre-Technical Program at four New York City high schools.

An interdisciplinary program in English, mathematics, science, and technical lab was instituted in grades eleven and twelve, leading to a technical curriculum at a community college. Subjects selected for the Program were low-achieving Academic or average-ability General course students. All had evidenced a technical talent or interest.

Two hypotheses were tested: (1) The 1966 and 1967 Pre-Technical graduates are not succeeding as well academically as a comparison group of normally-admitted students in the community college technical curricula; (2) High school grade averages and certain test data are useful indicators of academic success of Pre-Technical graduates who entered college technical curricula.

Success at college was based on satisfactory cumulative grade point index and academic standing at the end of the freshman year. Grading standards at high school and college were also analyzed. The experimental group was divided into five, according to the year of college entry and college entered.

The study showed that two experimental subgroups at different colleges succeeded as well as their Non-Pre-Technical counterparts. In some cases, stringent grading practices in particular curricula affected the comparability of academic achievement. Also, the preparation of the students from one of the sending high schools was questioned. Subject matter weaknesses were conspicuous for all Pre-Technical graduates in college science and for students at two colleges in mathematics.

Correlations between high school 11th/12th (combined) years' grade averages and college freshman mean indices were significant for Pre-Technical graduates in only one of the three community colleges.

All subgroups raised their mean averages in 11th/12th (combined) years in high school, although not all increases were statistically significant. At only one high school did tests indicate that Pre-Technical teachers may have applied grading standards different from those employed by teachers of other subjects.

Additionally, correlations between the composite score on the Iowa Tests of Educational Development and college freshman mean indices were significant for the students who entered one community college. ITED scores were available for only 69% of the 117 subjects.

The experimental population probably would not have graduated from high school without the Pre-Technical Program. Certainly, few would have entered college, had they completed the high school program without special assistance. However, at college, most suffered from inadequate or unrealistic preparation for the college technical curricula.

The chances of collegiate success of Pre-Technical graduates might be improved through: (1) better articulation between high school and college instructors; (2) improved guidance testing to direct students into the appropriate college career curriculum; (3) an extra semester or summer session of remedial, non-credit study at college; (4) an investigation into the appropriateness of the requirements in college technical curricula; and (5) more comprehensive research evaluation of the total program.

While the society clamors for vast numbers of technicians, many average-ability students, unchallenged by their high school studies, drop out of high school or graduate with no special preparation and constitute a major proportion of the unemployed. Many of these students can be prepared for technical positions, related to their talent, through the Pre-Technical Program and community college career curricula.

Order No. 70-26,795, 159 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Olson, Herbert, Adrian
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT AND COMPARISON OF A MODEL INDUSTRIAL ADVISORY COUNCIL FOR THE TECHNICAL-VOCATIONAL PROGRAM OF THE COMMUNITY COLLEGE.

Degree granted Ed.D., Date 1970 No. of pages in report 510

Granted by University of Houston Houston, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The philosophy of the community college typically has a "meet the community needs" orientation. Recent growth of the community college movement has been accompanied by an emphasis on technical-vocational occupational preparation programs.

The objective of this investigation was to develop a rationale for a model advisory council. The model rationale was based on identifying and recording the structure, composition, and role of such a body. The resulting model was subsequently compared with practices existing in each of eighteen participating community colleges.

Twenty large metropolitan areas (1,000,000 population) were analyzed in this study. Employment data for each metropolitan area were analyzed, resulting in a proposed advisory council for each college/metropolitan area. For model comparison purposes, a questionnaire concerning advisory councils was sent to twenty community colleges in the metropolitan areas examined. Concurrently, information concerning statutory or other legal requirements related to advisory councils was requested from the state directors of technical-vocational education in the sixteen states containing the twenty communities in the study.

The resulting model industrial advisory council is described as follows:

Structure. The investigation assumed the community college possesses a responsibility to logically incorporate the needs of the community into any determination of program direction or emphasis. Structural factors which serve to give the model operational capability are: provision for the council to communicate its recommendations within the administrative organization of the college, administrative support for the council, recognition of the council's existence and contribution, acceptance of the council as a continuing, on-going activity, and appointment and replacement of membership on a programmed basis.

Composition. The size of the council is set at twenty members. Employment sources in the community represent nearly one-half of the membership. The balance of council membership is distributed among labor, education, government, and various consultants or community agencies. The employers' segment of the composition is variable and subject to modification in relation to the character of the particular community served by the institution. The community segments which constitute the balance of the model council's composition are applicable to all communities and are therefore held constant.

Model Role. The role of the council is characterized by involvement in the technical-vocational program while at the same time recognizing an emphasis on the advisory nature of the council. In general, the role of the council is oriented toward the determination of overall community and individual needs and subsequently translating these needs into a recommended direction and emphasis for the technical-vocational program.

The investigation demonstrated the applicability of the model to large metropolitan areas and indicated that relatively minor modifications to the model would be required in most applications. Application of the method pursued in this study provides persons interested in technical-vocational programs with a logic for the creation of an advisory body to serve their particular institution/metropolitan area. Individuals interested in the twenty standard metropolitan statistical areas included in this report have information in a readily usable form. Individuals interested in communities not covered by this report may use the data sources cited in the report to gather and apply information related to their community.

The study found that most colleges employed individual "curriculum" advisory committees but few had an overall "general" advisory committee to advise on the goals and general direction of the technical-vocational program. Four of the institutions participating in the investigation reported the existence of a general advisory council. Although the existing committees bore a general resemblance to the model proposed for each community, the investigation also revealed certain instances where the existing committee did not evidence a uniformly logical relationship to the community served by the institution.

The study resulted in a suggestion for additional investigation in the areas of follow-up data related to ultimate occupational and geographical placement of technical-vocational program graduates and a comparison of the respective roles of colleges serving medium or small areas as opposed to colleges serving large metropolitan areas.

Order No. 71-3182, 510 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Orr, Ralph, O'Dell
(Last name) (First name) (Middle name)

Exact Title CREDENTIALING TRADE AND INDUSTRIAL TEACHERS

Degree granted Ph.D., Date 1970 No. of pages in report 140

Granted by Colorado State University Fort Collins, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The main purpose of this study was to determine if there were significant differences in performance on certain variables among secondary school trade and industrial education teachers, non-teaching tradesmen, and secondary school industrial arts teachers in the fields of auto mechanics, carpentry, and machine shop. A trade competency test and a trade vocabulary test were administered to each subject as the criteria for assessing the differences.

A secondary purpose of the study was to determine if significant relationships existed between performance on the two tests as compared with length of on-the-job trade experience and academic degrees possessed by the teachers in the three trades. An additional objective of the study was to summarize and present, for informational purposes, biographical data or "profiles" of the teachers who participated in the study.

Secondary school teachers and working tradesmen within the State of Colorado formed the population for the study. Volunteers from each of the three groups were from nearly every geographical area of the state.

Statistical tests involved the analysis of variance to determine if there were significant differences between the groups. The Scheffé post-hoc comparison technique was used to determine wherein the differences were great enough to be statistically significant. Pearson product-moment correlations were computed to determine significant relationships between test scores and biographical data. The "profiles" were simply tabled and reported.

It was hypothesized that the mean test scores for the groups would fall in decending order from trade and industrial teachers to tradesmen to industrial arts teachers. This hypothesis proved to be true in nine out of the ten comparisons. Results of the study did not indicate significant differences in test scores between trade and industrial teachers and tradesmen; neither did it show significant differences between tradesmen and industrial arts teachers. Those differences which were significant were between trade and industrial teachers and industrial arts teachers.

Correlations between both the trade vocabulary test and the trade competency test and the variables of academic degrees and length of trade experience were non-significant for all but the industrial arts machine shop and woodwork teachers. There was a significant correlation between the length of time they had worked on the job and performance on the trade competency examination.

Order No. 71-5354, 140 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Pate, Dove, Henry JR.
(Last name) (First name) (Middle name)

Exact Title THE RECREATIONAL FUNCTION FOR INDUSTRIAL ARTS EDUCATION: ORIGINS, PRINCIPLES, AND GUIDELINES.

Degree granted Ed.D., Date 1970 No. of pages in report 190

Granted by North Carolina State University Raleigh, North Carolina
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Numerous social, economic, and political observers have predicted a trend toward a post-industrial society and an attendant increase in the leisure prerogative of the American public. If the rise in leisure time continues, the American educational system, and industrial arts as a segment of that system, may be required to provide education for leisure. Thus, this study is concerned with the identification of origins, principles, and guidelines relevant to the recreational function of industrial arts as one path to leisure education.

The purpose of the study is to clarify the recreational function of industrial arts. The methodology is based on a survey of the available literature and an analysis and interpretation of the findings. The literature surveyed consists of pertinent information contained in the professional writing in the fields of sociology, recreation, education, and industrial arts.

The historical origins of recreational philosophy and thought were reviewed as a basis for contemporary thinking. The study of the major theories of recreation and play resulted in seven groupings including: surplus energy theories; re-creational and relaxation theories; preparation for life theories; instinct theories; recapitulation theories; catharsis theories; and self-expression theories. These seven theoretical orientations yielded 15 theoretical principles on the relationship between man and recreation.

The concern for education for leisure in American education and in industrial arts education was reviewed as antecedents of modern conceptions. The "worthy use of leisure" and avocational-recreational objectives were consistently referenced in the professional literature.

Through the writings on social and philosophical implications of recreation and leisure, a more complete understanding of the phenomena was developed. From the discussion a listing of 20 recreational identities which characterize the nature of recreation were derived.

From an analysis and interpretation of the literature a set of guidelines was developed for implementation of the recreational function in industrial arts education. The guidelines were categorized under curricula, participants, leadership, methodology, media, facilities, and evaluation. Recommendations for further research needed for additional development of recreation in industrial arts were listed.

Order No. 71-19,931, 190 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Pershing (Last name), Rex (First name), Weldon (Middle name)

Exact Title ESTABLISHMENT OF CRITERIA FOR THE EVALUATION AND DEVELOPMENT OF INDUSTRIAL EDUCATION DOCTORAL DEGREE PROGRAMS.

Degree granted Ed.D., Date 1970 No. of pages in report 189

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose

The main purpose of this study was to identify criteria regarding important requirements, practices, and procedures for the evaluation of existing industrial education doctoral programs and the development of new industrial education doctoral programs.

Method

An opinionnaire, developed by the investigator, centered around the following facets of an industrial education doctoral program; respondents' background, admission requirements, course offerings, student and program objectives, teaching and/or industrial experience, scope of faculty advisement, research requirements, residency requirements, and need for a non-dissertation doctoral degree.

The population was identified by twenty-three departmental heads of institutions offering doctoral degrees in industrial education. There were 207 respondents, which was 77.8 per cent of the designated population of 266 doctoral students in industrial education who received their degrees between June, 1964, and February, 1969.

Selected Findings

Population distribution.—The distribution of the respondents was divided as follows: 132 industrial arts respondents, 21 trade and industrial respondents, and 54 industrial-technical respondents. The Ed.D. degree was held by 167 respondents and the Ph.D. degree by 39 respondents. Education related occupations were the employment of 201 of the respondents.

Admission requirements.—An applicant should possess a master's degree in any area of industrial education, with a B on upper division undergraduate and graduate course work. Also, two to three years of teaching and/or administrative experience, and one to two terms of unclassified course work should be required. Trade and industrial and industrial-technical education students should have one to three years of industrial work experience before admission.

No minimum score on the Graduate Record Examination should be stipulated (score used for over-all evaluation of student). An applicant should make a written statement of professional intent before being accepted into a doctoral program.

Course work requirements.—Course work applicable toward a degree should be open only to master's and doctoral students and taught by faculty members with earned doctorates or with graduate faculty status.

Course work should be graded on an A, B, C, D, F scale, and the student should maintain an academic grade point average of 3,00 or better. All course work should be designed to meet the needs of the student as determined by the advisor and/or advisory committee. Twenty to 50 per cent of the course work should be seminar or independent study type courses. Forty to 60 per cent of the core for the program should be industrial education courses. A student planning to teach a technical area at the college level should have from 18 to 36 quarter hours credit in that technical area. The supporting area should be determined by the student and advisor and/or advisory committee.

Selected upper division undergraduate course work with appropriate graduate designation should be applicable with only master's and doctoral students participating.

Research requirements.—A dissertation should be required of all doctoral students, started any time during the program the student is ready as determined by the advisor and/or advisory committee, and defended orally. The dissertation topic should be chosen by the student and approved by the advisor and/or advisory committee. Credit for the dissertation should be a maximum of 18 quarter hours.

Comprehensive examinations.—Written and oral comprehensive examinations should be required of all students, and given when the student is ready as determined by the advisor and/or advisory committee. A written comprehensive examination should be a measurement of the student's competency level of a department's statement of minimum standards of attainment.

Residency requirements.—A residency should consist of one academic year of consecutive terms with 75 per cent of or a full term load of course work.

Practices and procedures.—A statement of minimum standards of attainment for teaching, administration, and research should be made by the department of industrial education.

The advisor should only advise or approve student requirements, and a contract between the student and his committee regarding the number and type of courses for degree requirements should be signed during the first or second term of residency.

A doctoral degree candidate should be required to have two or three years of teaching and/or administrative experience before receiving the degree.

Trade and industrial and industrial-technical education candidates should be required to have two or three years of industrial work experience before receiving the degree. Doctoral students lacking experience in an area for which they are preparing should serve an internship of one year before graduation.

Areas of study.—The following areas of study should be available to the doctoral student to strengthen his professional competency: philosophy of industrial education; curriculum analysis and construction; research techniques—statistics; structuring research to solve problems in industrial education; evaluation; curriculum innovations; history of industrial education; learning theories and psychology; supervision and administration of industrial education; what research says about problems in industrial education; computer programming and data processing; teaching methods and techniques; legislation, school law and finance; facilities and equipment planning; public school administration and finance; conference procedures; and materials of industry.

Order No. 71-4206, 189 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Peter (Last name), Richard (First name), Francis (Middle name)

Exact Title THE DEVELOPMENT OF A COMPREHENSIVE ACHIEVEMENT TEST FOR THE WORLD OF CONSTRUCTION.

Degree granted Ph.D., Date 1970 No. of pages in report 232

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this research effort was to develop a rationale and structure for constructing a comprehensive achievement test in construction technology. The textbook used for determining instructional content to be measured by the test is entitled, *The World of Construction*. It was produced by the Industrial Arts Curriculum Project at The Ohio State University.

The problem which became the focus of this study was to develop a comprehensive achievement test which would include items which represent all the major concepts of the construction course and would measure a student's grasp of relatively permanent knowledge. A majority of items would be based upon intermediate educational objectives which reflect the application, analysis, synthesis, and evaluation categories of Bloom's taxonomy.

The procedures followed in arriving at a solution to the problem may be summarized as follows: (1) Major concepts of construction technology were identified. (2) An outline of each major topic was developed to show its principal sub-elements; (3) A set of intermediate objectives related to the major concepts were developed to bridge the gap between the broadly stated course objectives and the specific daily operational objectives; (4) A table of specifications was established as a blueprint for developing a test which would represent all the major concepts of construction technology and would also reflect higher level objectives; (5) Test items were written according to the table of specifications and criteria outlined in current literature in the field of educational measurement; (6) The first draft of the test was pilot tested with 66 boys in seventh grade construction classes in Evanston, Illinois; (7) An item analysis of the test was performed and revisions were made; (8) The revised test was administered to 116 boys in seventh grade construction classes in Cincinnati, Ohio.

The rationale and structure developed in the course of this research effort provided a logically defensible structure for the development of a comprehensive achievement test in construction technology. The statistical analysis of the revised test suggests that the technique employed by the writer was successful in producing an achievement test with high discrimination, reliability, and validity factors.

Order No. 71-7535, 232 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Reed, Richard, Lee
(Last name) (First name) (Middle name)

Exact Title AN INVESTIGATION OF THE USE OF A PHOTOGRAPHIC EMULSION AS A PAINTING AND SCULPTURE MEDIUM.

Degree granted Ed.D., Date 1971 No. of pages in report 94

Granted by Columbia University New York, New York
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Part I of the dissertation is an investigation to determine the possibility of using photographic emulsion as a painting and sculpture technique. Technical problems and practical feasibility are reported. Part II was an exhibit of paintings and sculpture created by the writer using a photographic emulsion as the common technique. These art products were shown at Teachers College Art Gallery from February 2, 1970 through February 14, 1970. A photographic record of all the displayed works appears in Appendix VI of the dissertation.

Five areas of basic concern are discussed. The first of these is the character of the photographic emulsion and its application. Although the study acknowledges the availability of emulsions, this particular study is based on the exclusive use of a commercially manufactured Rockland Associates CB101 photographic emulsion. Humidity and temperature were found to be critical areas which required a fine degree of control. The following methods of application are discussed—brushing, squeegee, knife-edge coating, and spraying.

The second concern is the effect of assorted material surfaces which the artist might readily use for the emulsion, including concrete, cardboard, stone, metal, glass, mirror, styrofoam, plastic, and fiberglass. Certain materials, such as iron, concrete, and plaster, completely destroy the normal characteristics of the emulsion.

The third area of concern is the effect of *primers*, or paints, varnishes and other surface films. Primers include acrylics, acrylic base enamel, oil base enamel, epoxy, gesso, rubber base paint, damar varnish, lacquer, plastic coating, polymer emulsion, polyurethane varnish, and shellac. When using certain precautions, most of the primers work quite well with the emulsion.

Generally the same basic darkroom procedures are used for the emulsion as those used with photographic papers. However, the size of art products and the three-dimensional nature of some items cause the need for special equipment and special considerations which are not common practice in traditional photography.

Technical departures from traditional practice or standards that seem to have aesthetic potential, projected uses for the emulsion, and aesthetic and educational implications are the final considerations of the dissertation. Certain seeming failures occurred during the pursuit of the investigation, and some of these unusual happenings appeared to have aesthetic potential. A pebble texture, fogging, selective fogging, distorted images, and diffused images are included. Projected uses of the emulsion include "pop art" realism, color flexibility, uneven texture, image removal, emulsion flexibility, design backing on glass, and additional possible applications.

Aesthetic and educational implications are considered. Relative to this, the relationship between this emulsion technique and the surrealist art movement, as well as the relation of the emulsion to the current rise of illusionism in contemporary art circles, are two major areas of the discussion.

Order No. 71-20,025, 94 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Repp, Victor, Emanuel
(Last name) (First name) (Middle name)

Exact Title THE RELATIVE EFFECTIVENESS OF TWO DEMONSTRATION TECHNIQUES IN TEACHING INDUSTRIAL ARTS.

Degree granted Ed.D., Date 1970 No. of pages in report 104

Granted by The Pennsylvania State University University Park, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The Problem

The purpose of this study was to compare the relative effectiveness of two techniques of presenting learning tasks by the class demonstration: (1) conventional class demonstrations, and (2) conventional class demonstrations supplemented with a printed, illustrated demonstration-performance guide.

The Procedure

The total of 109 high school subjects were grouped according to their regularly assigned classes which were randomly assigned to control or experimental treatment. Each of the four teachers taught a like number of control and experimental classes. No significant differences were found between the control and experimental groups in intelligence, chronological age, and physical maturity as measured by hand dynamometer.

The experimental group, using the demonstration-performance guides, was compared to a control group using conventional materials. The two groups were compared on the basis of the following criterion scores: (1) amount of technical knowledge acquired by the learner, (2) degree of manipulative skill developed, (3) speed of performance, (4) time required to present the class demonstrations, (5) quantity of material consumed by the learner in attempting to perform the demonstrated tasks, (6) number of follow-up individual demonstrations, and (7) number of follow-up small group demonstrations.

The Findings

Analysis of the data was accomplished by the analysis of variance with significance determined by the F-distribution. No significant differences were found between the control and experimental groups on the following variables: "manipulative skill," "speed of performance," "class demonstration time," "material consumption," "follow-up individual demonstrations," and "follow-up small group demonstrations." Therefore, on the basis of the findings on these variables, the general null hypotheses, $(H_O) = \mu_1 = \mu_2 = \mu_p$, could not be rejected; however, a significant difference at the .05 level of confidence, favoring the control group, was found on the technical knowledge variable.

Conclusions

From the statistical analysis of the study data, it must be concluded that the demonstration-performance guides utilized in the investigation were ineffective in supplementing the class demonstrations in the teaching of manipulative skills necessary for performance of basic metal lathe operations. Significant differences between the control and experimental groups favoring the experimental treatment did not appear on any of the seven variables studied.

A significant difference favoring the control group was found on the technical knowledge variable. A possible explanation for this result is that since the experimental group could rely on the demonstration-performance guides to assist them in their attempts to perform the demonstrated tasks, they were less motivated to commit the technical knowledge to memory.

A correlation coefficient significant at the .01 level of confidence was found between strength of grip and age, supporting earlier findings that strength of grip increases steadily with chronological age throughout the age of the students employed in this study.

A significant correlation was also found between strength of grip and manipulative skill, supporting earlier findings that strength of grip is a valid indicator of the physical maturity necessary for successful performance of complex finger coordinative skills.

A significant correlation between intelligence and gain in technical knowledge was also found. Therefore, a student having a combination of low intelligence and low grip strength would likely be unsuited for learning basic metal lathe operation.

Order No. 71-21,794, 104 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Ross, B., John
(Last name) (First name) (Middle name)

Exact Title MUSEUM RESOURCES AND THEIR UTILIZATION IN INDUSTRIAL ARTS EDUCATION

Degree granted Ed.D., Date 1971 No. of pages in report 374

Granted by New York University Washington Square, New York
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Problem and Its Significance

The purpose of this study was to develop a plan for utilizing museums as resources for industrial arts education. Museums surveyed were located within the State of New York and delimited to those which identified subject categories of resources considered appropriate to instructional areas of industrial arts. Members of educator groups and museum professionals who participated in the study with the exception of teacher educators were employees of public schools, colleges, and museums of New York State. The latter included selected teacher educators from other states.

Museums were acknowledged as a source of sensory learning experiences important to improved instructional programs. Their resources and services were considered as appropriate supplemental instructional aids for programs of industrial arts.

Since the primary mission for industrial arts is to provide an understanding of American industry with an awareness of its changing technology, its comprehensive content implies a changing and varied methodology. Therefore, this study was designed to provide greater understanding of museum resources and their application to industrial arts programs through a survey of instructional needs, identification of relevant resources, study of current uses, and development of a plan to assist educators in using the resources and services of museums.

Procedure and Types of Data

A questionnaire survey of educator groups was sent to industrial arts teachers, department chairmen, and teacher educators. Sixty-two percent of the sample responded to the survey. Data retrieved from these groups included information about their present utilization of museums, the relevancy of museum resources to industrial arts instruction, and materials appropriate to a plan for utilization of museum resources.

A questionnaire of similar design was mailed to museum professionals to obtain comparative data for the study. Fifty-eight percent returned usable data. Information supplied by this group defined status of use, documented existing resources, and provided specific information relating to the use of their museums.

Results of the Study

Museum resources were considered appropriate to instructional programs according to industrial arts educator groups surveyed. A majority of these educators had made personal visits to museums but had not used such resources to supplement instruction. *The development of hand tools and their uses* was considered by educators as the category of museum resources most appropriate to their use. They placed high priority on the *on site visit* for using museum resources and assigned a lower priority to using *loan materials, resource persons, consultive services,* and *in-service programs.*

Museum professionals documented the availability of resources considered appropriate by educator groups. Although resources were available they did not report extended use of their museums by industrial arts educators. They ranked their museum's greatest program potential as *on site visit utilization,* with *lectures and/or demonstrations,* and *loan materials* next in order.

Conclusions and Recommendations

Museums with appropriate resources for industrial arts were reported in all areas of New York State. Educators, although agreeing with the concept of utilizing museum resources, have not fully utilized area museums. Their lack of museum related training and school policies regarding use of museums were restrictive elements.

Major recommendations for improving utilization of available resources included the need for improved teacher educational programs, coordination and cooperation of school and museum professionals, a sharing of knowledge and skills, and planned implementation by school staff. Recommendations also included the need for supportive programs relating to attitudes, improved museum facilities, staffing, and finance.

It is suggested that the population characteristics of New York State exist throughout the nation. Therefore, the study and its findings are appropriate to many individualized programs.

Order No. 71-24,830, 374 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Routh, Jerry, Doyle
(Last name) (First name) (Middle name)

Exact Title THE EFFECT OF TWO APPROACHES TO VISUAL INFORMATION TRANSMISSION ON STUDENT INFORMATIONAL ACHIEVEMENT AND PICTORIAL RECOGNITION.

Degree granted Ed.D., Date 1970 No. of pages in report 246

Granted by University of Missouri Columbia, Missouri
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

PURPOSE:

To ascertain the effect on student behavior of two approaches to visual information transmission. One approach was to vary the sequence of messages transmitted through the visual communications channel. Information presented simultaneously was compared to information transmitted sequentially through the pictorial and nonpictorial channels. The second approach was to vary the redundancy of messages presented through the visual communications channel. A situation of high redundancy between the pictorial and nonpictorial channels was compared to a situation of low redundancy between the same channels. More specifically the study attempted to answer the following questions:

(1) What effect does the sequence of information transmission have on student informational achievement?
(2) What effect does redundancy have on student informational achievement?
(3) What effect does the sequence of information transmission have on the ability of students to recognize previously observed pictorial images?
(4) What effect does redundancy have on the ability of students to recognize previously observed pictorial images?
(5) What effect does the sequence of information transmission have on student retention?
(6) What effect does redundancy have on student retention?

METHOD OF RESEARCH:

This investigation was conducted as a four group controlled experiment. Data for the study were collected from 139 college students enrolled in D371 Production of Instructional Media Materials, University of Missouri - Columbia, during the Winter Semester 1970.

The pictorial and nonpictorial stimuli comprising the treatments were presented with slide projectors and special attention was given to features that would facilitate the standardization of the presentation over all treatment groups.

Responses to an Informational Achievement Test, Pictorial Recognition Test, and retention tests, were analyzed for differences which may have resulted from the treatment variables.

The two-way analysis of variance was utilized to test the main effects of the method of presentation and the amount of redundancy upon the measures of student behavior. *Winer's Simple Effects Test* was employed to test the simple effects. A confidence level of .05 was used as the standard for rejecting the null hypotheses in all statistical tests.

SUMMARY OF THE FINDINGS:

(1) In all cases tested, the data failed to reveal any significant differences among the mean test scores of treatment groups which received visual information transmitted simultaneously between the pictorial and nonpictorial channels and treatment groups which received information transmitted sequentially between the same channels.
(2) The data did reveal, in all cases tested, a significant difference among the mean test scores of treatment groups which received information that was high in redundancy and treatment groups which received information that was low in redundancy.

CONCLUSIONS:

(1) Increasing the amount of redundancy between the pictorial and nonpictorial channels is an important factor in learning and retaining visual information.
(2) Interference between the pictorial and nonpictorial channels does not exist at the speeds of information transmission used in this study.
(3) At the speeds of information transmission used in this study, alternating attention between the pictorial and nonpictorial channels will neither facilitate nor inhibit informational achievement, pictorial recognition or the retention of these two factors.

Order No. 71-8382, 246 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Ruiter, William, Wallace
(Last name) (First name) (Middle name)

Exact Title AN ANALYSIS OF THE EFFECTIVENESS OF A LEARNER-CENTERED TEACHING SYSTEM COMPARED TO THAT OF A CONVENTIONAL TEACHING OF BASIC ELECTRICITY TO UNIVERSITY STUDENTS

Degree granted Ed.D., Date 1971 No. of pages in report 120

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of this study was to compare the effectiveness of a learner-centered teaching system and that of a conventional teaching of basic electricity to university students. For this study 65 students enrolled in basic electricity at Arizona State University in Tempe, Arizona were used, distributed in two fall semester classes as a control group, utilizing conventional teaching, and two spring semester classes as an experimental group, using the learner-centered teaching system.

All students participating in this study were given the Bell Laboratories Electricity Examination as a pre-test and as a final test. The Otis Test of Mental Ability was given to insure that each group was comparable in mental ability.

Conclusions

The findings of this investigation supported the hypotheses that the experimental learner-centered teaching system was as effective as the conventional method used in teaching basic electricity. Furthermore, it was found that it proved to be significantly superior to the conventional method, both in the achievement of learning of electrical knowledge, and in the number of electrical experiments successfully completed by the students.

A step-wise linear regression program provided the necessary information to conduct tests for strength of relationship between the control and the dependent variables.

It was concluded that there was a relationship between the pretest and post-test scores for both groups and that this relationship was stronger for the experimental group.

It was found that there was a strong negative correlation between the pre-test scores and gain in knowledge for both groups. The correlation between the post-test score and gain in learning was statistically significant for the control groups but not for the experimental group.

In the prediction equation of the step-wise linear regression program it was determined that group membership contributed to the prediction of the correlation between predicted post-test score and observed post-test score. It was determined that there was a significant difference between the means of the experimental and control groups, and that pre-test scores contained predictive information while intelligence quotients did not.

The F statistic obtained from the analysis of covariance was determined to be statistically significant indicating a significant difference between the adjusted post-test score of the two groups.

The experimental group completed in excess of 20 percent more of the laboratory experiments than did the control group.

Recommendations

1. Additional studies of this experimental method should be conducted by different instructors in controlled situations in order to determine that the effectiveness of the system is transferable to other instructors.
2. Variables within the experimental teaching system should be examined statistically in order to improve upon the existing system and to add to the existing knowledge of learning processes.
3. Because the learner-centered teaching system was more effective than the conventional teaching method, it is recommended that this method be adapted to other subject areas and evaluated statistically.

Order No. 71-25,072, 120 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Schacht (Last name), Robert (First name), Charles (Middle name)

Exact Title AN EXPERIMENTAL INVESTIGATION TO ANALYZE THE EFFECT OF MENTAL PRACTICE ON THE INITIAL ACQUISITION OF A MOTOR SKILL

Degree granted Ed.D., Date 1971 No. of pages in report 153

Granted by University of Maryland (Name of institution) College Park, Maryland (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

This study was conducted to investigate the effect of mental practice on the initial acquisition of a motor skill commonly associated with the curriculum area of vocational printing.

Since one of the primary purposes of vocational education has been to prepare an individual for entry into a changing world of work, vocational educators have always been seeking ways to promote efficient means of acquiring the necessary skills. The use of mental practice techniques in acquiring the necessary skills for a new and changing work environment would not only promote efficient learning but would also provide the individual with flexible and adaptive skills necessary for income and job security.

The motor task utilized in this study consisted of hand-feeding sheets of twenty pound white bond paper into a power driven platen press to receive lettering of the subject's choice. The motor task was utilized in the initial test, the physical practice periods, and the final test. The number of sheets of paper printed correctly was the test score. A sheet of paper was correctly printed when all of the lettering printed inside a blue band preprinted on the paper.

The population selected to participate in this study was right-handed male subjects enrolled in daytime courses in the School of Technology, Indiana State University, Terre Haute, Indiana. Only those subjects with no previous high school, college, or industrial experience in printing were permitted to participate.

A table of random numbers was used to extract eighty subjects from the population. Utilizing random selection techniques, twenty subjects were selected and identified as Treatment D (non-instruction). The remaining sixty subjects were administered the initial test and their scores were recorded. On the basis of the initial test scores, the remaining sixty subjects were assigned to two levels of ability in three treatment groups: Treatment A (physical practice), Treatment B (mental practice), and Treatment C (control).

The treatment was administered to the Treatment A (physical practice) group and the Treatment B (mental practice) group. The Treatment A group physically practiced the motor task and the Treatment B group mentally practiced the motor task. There were two practice sessions for each group and each session was four minutes in length. The eighty subjects assigned to the four treatment groups were administered the final test and their scores were recorded. The initial test score was subtracted from the final test score to obtain gain scores for the Treatment A, Treatment B, and Treatment C groups.

The data supported significant differences between the three treatment groups. The gain score mean of each treatment group was significantly different from the gain score means of the other treatment groups. The gain score mean of Treatment A was the highest; the gain score mean of Treatment B was second; and the gain score mean of Treatment C was the lowest of the treatment groups. No significant difference was found between treatments and levels of ability and there was no interaction of variables.

There was also a significant difference found between the control group and the non-instruction group. The mean of the final test score of Treatment C (control group) was significantly higher than the mean of the final test score of Treatment D (non-instruction).

The results of the study indicated that physical practice had a significant effect on the initial acquisition of a vocational printing motor skill. The results also indicated that mental practice had value in acquiring a vocational printing motor skill. The results indicated that the initial test and demonstration had a significant effect on the scores of the final test.

Order No. 71-25,259, 153 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Schmidt (Last name), Howard (First name), Raymond (Middle name)

Exact Title PRESENT STATUS OF EXPERIMENTAL AIRCRAFT CONSTRUCTION IN THE HIGH SCHOOL WITH IMPLICATIONS FOR THE INDUSTRIAL ARTS PROGRAM

Degree granted Ed.D., Date 1971 No. of pages in report 157

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Statement of the Problem

The primary purpose of this study was to collect data to provide infor- ation relating to the present status of high school programs in which xperimental aircraft construction had taken place. The study covered the reas of personnel, students, organization and administration, curriculum, echnical details of the aircraft constructed, and recommendations by eachers for similar programs.

Method of Study

A card and two questionnaires were developed and utilized to obtain he data necessary to answer the questions posed in the study. The card was sed to identify experimental aircraft construction programs in high chools. A comprehensive questionnaire was sent to teachers who had onducted experimental aircraft construction classes in high school. A econd questionnaire was provided for students in aircraft construction lasses.

Selected Findings of the Study

1. Thirteen programs were identified in which experimental aircraft construction had taken place during the ten-year period from 1961 to 1971.
2. One aircraft construction program was in operation during the 1963-1964 school year; ten programs were operating during the 1969-1970 school year.
3. Eleven out of the fourteen teachers in aircraft construction classes held FAA flying ratings of private pilot or better.
4. Thirteen out of the fourteen teachers held an undergraduate major in industrial arts.
5. Hobby or interest in aviation was rated as the most important single factor contributing to a teacher's ability to conduct an experimental aircraft construction class in high school.
6. Ten out of the thirteen programs were listed under the industrial arts department.
7. General education and developing problem solving ability were the course objectives rated number one by the largest number of teachers.
8. All teachers of high school aircraft construction classes recommended that college-level courses be initiated for teachers of experimental aircraft construction classes in high schools.
9. In the thirteen schools surveyed, seventeen projects were under construction or had been completed in the ten-year period from 1961 to 1971.

Selected Conclusions

1. The number of aircraft construction programs has been increasing during the past ten-year period.
2. A strong interest in aviation is an important factor in the selection of a teacher for an experimental aircraft construction class.
3. The industrial arts department is a logical place for an experimental aircraft construction class in the high school.
4. One of the most important purposes of a high school experimental aircraft construction class is its contribution to the general education of the student.
5. Teachers felt that college-level courses in aircraft construction would aid them in providing a better program.

Selected Recommendations

1. Teachers in high school experimental aircraft construction classes should join the Experimental Aircraft Association.
2. Aircraft construction classes should be carefully structured to make the program relevant to student needs.
3. Teamwork and problem solving in the aircraft construction class should be stressed; structure the class so that the students can make many decisions.
4. A complete set of EAA publications for use in the construction class should be secured. Include a school membership in the EAA to insure a current copy of *Sport Aviation* in the school library.
5. Colleges should provide classes and workshops to provide teachers qualified to conduct high school aircraft construction classes.
6. Aircraft construction classes should be studied at five or ten-year intervals to ascertain changes in type and number of classes.
7. The EAA membership should be surveyed to determine the number of teachers who are qualified to conduct an aircraft construction class.
8. A follow-up study should be made on students who have participated in an aircraft construction class in high school.

Order No. 71-26,836, 157 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Schoesler, Ronald, Dean
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT AND EVALUATION OF NEW INSTRUCTIONAL MEDIA FOR THE OFFSET DUPLICATING PROCESS UTILIZING THE AUDISCAN SYSTEM

Degree granted Ed.D., Date 1971 No. of pages in report 138

Granted by Oregon State University Corvallis, Oregon
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The research study discussed and amplified in this paper consisted of the development and evaluation of two instructional concepts illustrating the procedures for 1) typing an offset master, and 2) duplicating offset copies. Each concept was prepared for use with the Audiscan projector, which utilizes a 16mm continuous loop filmstrip and synchronized sound tape. The medium requires individual student performance and participation.

The study was designed to determine whether students using the Audiscan (the experimental groups) could master the two concepts without assistance from an instructor and whether they could complete the required performance activities more efficiently than students not using the Audiscan (the control groups). Two experimental and two control groups were selected from a Business Machines and an Office Procedures class at Oregon State University.

Results of testing indicated that the experimental groups did complete the required performance tasks without the aid of the instructor. Evaluation factors indicate that the experimental groups were measurably higher in all categories evaluated. In addition, the attitude of the students in the experimental groups was highly favorable; they preferred the use of the Audiscan and its self-contained concepts to the traditional lecture/demonstration presentation.

The development of concepts for the Audiscan by the writer of this study demonstrates that it is possible for a classroom instructor to prepare instructional materials of this type at a minimal cost, provided adequate facilities and technical assistance are available within the institution. If it is necessary to rely upon commercial firms for assistance in production, the costs can become prohibitive.

Order No. 71-25,331, 138 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Sherrell, Eugene, G.
(Last name) (First name) (Middle name)

Exact Title FACTORS AFFECTING INTERSTATE MOBILITY OF TECHNICIANS GRADUATING FROM OKLAHOMA SCHOOLS.

Degree granted Ed.D., Date 1969 No. of pages in report 111

Granted by Oklahoma State University Stillwater, Oklahoma
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Scope and Method of Study: Recent studies indicate Oklahoma is losing a large proportion of its technical manpower. The study was specifically concerned with identifying employment patterns, and possible affect of selected variables causing interstate geographic mobility among technicians graduating from eight junior colleges, two technical institutes and a large vocational technical school during the five years of 1964 through 1968.

The basic design of the study was *ex-post-facto* in nature. The technician graduates who secured employment within the state of Oklahoma were compared to the technician graduates who secured employment out-of-the state by utilizing their responses to questions related to selected variables asked in a questionnaire designed for this specific purpose.

Findings and Conclusions: Significant differences were found in the several variables tested to determine affects on interstate geographic mobility of technicians graduating during the year studied. The variables of age, marital status, socioeconomic level, and demonstrated academic ability indicated no statistically significant difference in technician interstate geographic mobility. When the variables were compared by including type of school attended a significant difference in mobility appeared. Significant differences were found when comparing technology studied by the technician to interstate geographic mobility: specifically radiation technology, aeronautical technology, and fire protection technology. The chief reasons given for interstate mobility were: better job opportunities, to work in area of specialization, and to work with better known companies. The principal conclusion of this study was that job opportunities related to the technology studied greatly affected interstate geographic mobility.

Order No. 70-21,521, 111 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Shibles, Foster, Myrick
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE ORGANIZATIONAL STRUCTURE OF SECONDARY VOCATIONAL EDUCATION AND THE RELATIONSHIP OF THIS STRUCTURE TO PUPIL ATTITUDES TOWARD WORK

Degree granted Ed.D., Date 1971 No. of pages in report 267

Granted by Boston University School of Education Boston, Massachusetes
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of the study was to determine the relationship between the school organizational structure and pupil attitudes toward work. It was hypothesized that pupils who complete one and two year programs of study at secondary vocational schools will have more positive attitudes toward work than pupils who have completed comprehensive feeder high school courses in industrial arts, home economics, business education, and/or vocational agriculture for like periods of time.

Procedures

The instruments developed by the researcher to measure pupil attitudes toward work were a direct questionnaire and a semantic differential scale. Face validity of the instruments was established through administration of the instruments to a sample of secondary school pupils and subsequent revision of the instrument based upon the feedback from this procedure. By utilizing concept statements furnished to the researcher by tradesmen working in occupations for which pupils in secondary vocational schools are being prepared, the semantic differential scale and direct statement questionnaire were prepared. Reliability was established by utilizing a test-retest procedure. Pearson r coefficients of correlation between pre and post administrations of each instrument were computed. Correlations between responses to each variable on the direct questionnaire and between each scale on the semantic differential were computed. The coefficients obtained were lower than expected; however, they were allowed to stand and the findings of the study were interpreted within this limitation.

The instruments developed for the study were administered to a population of 969 pupils, consisting of three groups—twelfth grade boys in 9 selected Maine regional vocational centers, and tenth and twelfth grade boys attending the 21 comprehensive secondary schools which feed these centers. The responses from the three groups of respondents were tabulated, key punched, and analyzed by IBM 360 computer. A one-way analysis of variance procedure was used to compute F-ratios between groups, and the level of significance was set at .05.

Findings

Three hypotheses were tested in this study. They were:

1. Regional vocational-technical center twelfth grade boys will have more positive attitudes toward work than comprehensive feeder school twelfth grade boys enrolled in occupational courses of study.
2. Regional vocational-technical center twelfth grade boys will have more positive attitudes toward work than comprehensive feeder school tenth grade boys enrolled in occupational courses who plan fall enrollment in a vocational center.
3. Comprehensive feeder school twelfth grade boys enrolled in occupational courses will have more positive attitudes toward work than comprehensive feeder school tenth grade boys who plan fall vocational center enrollment.

Using a one-way analysis of variance procedure, the null form of each of the preceding hypotheses was accepted. This decision was made when the incidence of significant differences between means of attitude scores obtained did not equal or exceed a level which would have been expected by chance. This observation held for each hypothesis tested.

Though not of sufficient strength to be regarded as criteria for rejecting the null hypothesis, several differences between groups were noted:

1. The number of statistically significant mean differences between groups was found to be greatest when the twelfth grade regional vocational center and tenth grade comprehensive feeder school populations were compared. The next largest number of statistically significant mean difference between groups was noted between the twelfth grade regional vocational center and the twelfth grade comprehensive feeder school populations. The smallest number of significant differences between means of attitude scores was found when twelfth grade comprehensive feeder school and tenth grade comprehensive feeder school populations were compared.
2. Purposively selected samples drawn from each population on the basis of:
   - A. Post high school graduation plans;
   - B. Father's occupation;
   - C. Mother's education;
   - D. Father's education; and
   - E. Family income

   were compared. The results obtained tended to support the findings previously noted.
3. All groups tended to indicate positive attitudes toward work, and only minor variance was found between groups.
4. Though only four mean differences were statistically significant, twenty-one of the twenty-eight mean differences obtained between groups when twelfth grade regional vocational center and twelfth grade comprehensive feeder school populations were compared were in the direction predicted in the research hypothesis.

Conclusions

It must be concluded that statistically there appeared to be no significant relationship between organizational structure and pupil attitudes toward work. However, the low reliability results obtained for the instrumentation used in the study leaves this conclusion open to question; therefore, it must be regarded as tentative.

Order No. 71-26,739, 267 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Simpson, James, Lewis
(Last name) (First name) (Middle name)

Exact Title FACTORS RELATED TO THE PERSISTENCE OF ALASKAN NATIVES IN VOCATIONAL TECHNICAL EDUCATION.

Degree granted Ed.D., Date 1970 No. of pages in report 168

Granted by University of Washington Seattle, Washington
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was, first, to identify factors related to Alaska Native students who persist in vocational-technical education programs; and second, to identify the vocational-technical programs which appear to build upon these factors and thus are attractive to Native students.

Three hypotheses were tested in connection with the above-stated purpose. These are:

1. There was no significant difference across institutions in terms of student perception.
2. There was no significant difference between the students' perception of their chance of completion and the various factors that would influence their persistence.
3. There was no significant difference in terms of student perception between drop-outs versus persisters and the factors that would influence their persistence.

The study was conducted in two institutions in Alaska offering vocational-technical programs.

After a preliminary pilot study a special three-part questionnaire was developed by the investigator. Part I was used to collect personal background information such as age, sex, home town, miles from home, and prior educational background. Part II sought to determine perferences and feelings as to how the Native student viewed his family, counselors, program, college finances, housing, activities, his faculty, the community, and other students. Part III was a seven-point scale in which the student was asked to rate the college, other students in his program, the program he was in, the instructional staff, his participation in college activities, the importance of work, rules and regulations of the college, the Native with other students, study habits, readiness for a job, willingness to learn, the way he acted, and his probability of successfully completing the program. The questionnaire was administered to all of the Native students attending vocational-technical programs at the University of Alaska and the Anchorage Community College. For purposes of comparison, other students enrolled in these programs were asked to complete the questionnaire.

Relationships were analyzed using a chi-square test. Computation for each chi-square test accounted for the rejects. The results were considered significant if they achieved the .05 level of confidence.

Conclusions from the study were reached primarily by empirical evidence; however, subjective conclusions were also presented. These conclusions are based on the investigator's interpretation of the data plus subjective opinions drawn from other sources. Major empirical conclusions are as follows:

1. With the exception of electronics, the programs offered at both institutions were different.
2. Students attending the University of Alaska were generally younger, had a higher educational achievement, and had attended either a state-operated or independent public school.
3. Differences were found between institutions in terms of student perception. Students expressed differences in terms of housing, counseling, library services, and activities. In addition, students expressed differences between institutions in terms of friendliness (atmosphere) and other students in the institution they were attending.
4. Differences were also expressed by students in terms of probability of success. There were differences in such factors at college attended, Native compared with other, family interest, finances, housing, counseling, college atmosphere, help from and feelings about other students. In addition, there were differences in rating of students in program, the vocational program, instructional staff, importance of work, and perception of his own behavior.
5. In the analysis of drop-out compared to persister, student responses by institution demonstrated some differences; however, due to the small N of drop-outs, it was not feasible to partial by institution when testing the three hypotheses.

Subjective interpretations and conclusions indicate that one major factor responsible for the high drop-out rate is the selection process. The present process used in matching Native students with vocational programs needs to be evaluated.

Order No. 71-1027, 168 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Slatter, John, Breisch
(Last name) (First name) (Middle name)

Exact Title SPECIFIC NEEDS FOR UPDATING EDUCATIONAL EXPERIENCES AS REPORTED BY INSTRUCTORS OF ELECTRONICS IN INDUSTRIAL EDUCATION DEPARTMENTS OF COLLEGES AND UNIVERSITIES.

Degree granted Ed.D., Date 1970 No. of pages in report 188

Granted by University of Northern Colorado Greeley, Colorado
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of the study was to determine the nature of needs felt by college level electronics instructors for updating educational experiences involving selected instructional elements and content areas identified as industrially required by previous studies.[1] An attempt was also made to determine the nature of course content needed in graduate level industrial education electronics curricula or in-service programs.

Procedures

The data resulting from a survey of 133 industrial education electronics instructors in 115 four year colleges and universities in forty states permitted: (1) assignment into baccalaureate degree categories, (2) the calculation of relative need values for instructional elements and content areas, and (3) the use of a priority system to report the relative degrees of need for updating experiences reported by industrial education electronics instructors.

Findings and Conclusions

Among the participating instructors over 50 per cent graduated with baccalaureate degrees after 1960, approximately 30 per cent graduated during the period 1950 to 1960, and roughly 20 per cent graduated prior to 1950.

Comparison of the needs reported by instructors in the various baccalaureate degree categories disclosed only slight differences in the degrees of need.

There was some tendency for those graduating before 1950 to report needs involving elements concerned with theories of electronic functions. This tendency may be due to increased emphasis on theoretical content in redesigned or projected industrial education electronics courses.

Instructors graduating during the period 1950 to 1960 tended to report smaller degrees of need for the study's elements than those in the other groups but wanted experience with elements dealing with the most recent advances in electronics technology. The needs reported by this group serves to indicate a need for in-service programs designed to emphasize the skills, processes, and body of knowledge related to advances in electronics technology which have occurred since 1950.

Instructors graduating since 1960 tended to indicate a need for content related to the practical application of techniques involved in the service of electronic devices; possibly as a result of the trend of industrial education departments to introduce electronics technology courses in their offerings.

Despite the fact that 70 per cent of the instructors reported participation in some type of electronics coursework during the period 1965 to 1970, their reported needs serve to indicate that many college level electronics instructors recognize the deficiencies which exist in their educational backgrounds and desire to remove them by participation in specific types of in-service programs.

Educators responsible for the design and implementation of in-service programs should include the content areas of integrated circuits and transducers which were identified as needed by 40 per cent or more of the instructors surveyed. These areas plus those identified as needed by 30 per cent or more of the instructors should also be considered for inclusion in graduate level programs. Areas included were: (1) switching, gating, counting circuits, (2) television, (3) modulation and demodulation, (4) antennas, (5) solid state fundamentals, and (6) oscillators.

There was need for continued emphasis of content considered a part of traditional industrial education electronics programs since 20 per cent or more of the instructors indicated a need for coursework in areas such as (1) alternating and direct current, (2) inductors and capacitors, (3) reactance and impedance, (4) basic circuits, (5) decimals and fractions, (6) powers of ten, and (6) factors of algebraic expression.

To assist in maximum student comprehension of the content areas cited, courses of study should be designed to include appropriate concepts related to: (1) physical science principles, laws, and theories, (2) mathematics operations including computer logic, (3) recent advances in electronics technology, and (4) the service of electronic devices.

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[1] Richard J. Vasek, "A Comparative Analysis of Electronic Content in Post High School Technological Institutes and Electronic Technology Requirement of Industry," (unpublished Doctoral dissertation, Texas A & M University, 1967).

Jean J. Simons, "Relative Understanding of Mathematical Concepts by Students Majoring in Electronics Technology," (unpublished Doctoral dissertation, Texas A & M University, 1967).

Order No. 71-4215, 188 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Soliman, Abdel Razek, Mahmoud
(Last name) (First name) (Middle name)

Exact Title A HISTORY OF THE DEVELOPMENT OF METACRAFT AND JEWELRY MAKING IN EGYPT.

Degree granted Ph.D., Date 1970 No. of pages in report 169

Granted by New York University Washington Square, New York
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

At present, in the United Arab Republic (Egypt), attention is being given to the need for studies of ways to preserve the country's national heritage. This interest has given educators a new stimulus to explore the need for revised programs in the history of the development of crafts.

This study was concerned with: (1) the history of the development of crafts in the Ancient, Islamic, and Modern Egypt periods; (2) the history of the development of metalcraft and jewelry making in Egypt during these three periods; (3) the description of the present course in The Teaching of the History of Specialization for students specializing in these two crafts in the Applied Arts College at Giza; and (4) suggested adjustments in the present course.

The primary aim of this investigation was to reveal information for inclusion in a course in the teaching of Art History for students specializing in Metalcraft and Jewelry in the Applied Arts College at Giza, and the Higher Institute of Art Education at Cairo, U.A.R. The following steps were taken to accomplish this objective:

1. The role of crafts in education in Egypt was researched and recorded.
2. A brief historical review of the arts and crafts movement during the Ancient, Islamic, and Modern Egypt periods was given.
3. A history of the development of the specific crafts of metalcraft and jewelry making in Egypt during these three periods was given.
4. Designs, materials, techniques, and other production data concerning the metalcraft and jewelry of these periods were described.
5. Illustrations of works in both crafts were selected for inclusion in the study.
6. The present course in The Teaching of History of Specialization for students specializing in both crafts in the Applied Arts College at Giza was described and adjustments in course content were suggested.
7. Recommendations to improve, preserve, and promote the production of crafts and their role in education were made.

Order No. 70-26,449, 169 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Stillerman, Manuel,
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION AND PREVENTIVE TREATMENT OF POTENTIAL LOW ACADEMIC ACHIEVERS AND ACADEMIC DROPOUTS IN ELECTRICAL AND MECHANICAL TECHNOLOGY AT A COMMUNITY COLLEGE.

Degree granted Ph.D., Date 1970 No. of pages in report 127

Granted by New York University Washington Square, New York
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to determine if an improvement in academic achievement and a reduction in student attrition could be obtained through the identification and treatment of potential low achievers and potential academic dropouts among community college students studying electrical and mechanical technology.

A treatment was developed consisting of a structured faculty advisor system. Volunteer faculty, called sponsors, aided high risk second semester freshmen through a series of planned interviews, referrals to college resources and direct help.

Forty Electrical and Mechanical Technology students who had achieved a first semester grade point index of 2.0 or less were selected from the freshman class of September, 1968, at New York City Community College. The treatment, called a Faculty Sponsor Program, was applied to this group of experimental subjects during their second semester. Eight of the experimental group were not treated because they refused to participate or were not available. These subjects were deleted from the study, leaving thirty-two experimental subjects.

These experimental subjects were matched with control subjects by use of predicted second semester grade point indexes. Data from a pool of control subjects consisting of freshmen admitted to the electrical and mechanical technology curriculums at New York City Community College during September of 1964, 1965, and 1966, and who met the same requirements by which the experimental subjects were selected was obtained. This data was used to develop linear regression equations to predict second semester grade point index from high school average and first semester index. The predictor equations, one for electrical technology and the other for mechanical technology, were applied to both the experimental subjects and the control group pool members. Each experimental subject was matched with the control pool member in the same curriculum who had the closest predicted second semester index. This resulted in two groups, a treated experimental group of thirty-two members and an untreated matched control group of the same number.

The academic performance of the two groups was compared by using the criteria of second semester grade-point-index and persistence as measured by registration for the third semester.

The experimental group was found to have an average second semester grade point index 0.507 higher than that of the controls. A "t" test for paired observations resulted in a "t" statistic of 2.54. Consequently, the experimental hypothesis:

> The use of the special treatment process improves the second semester grade-point-average of a group of poor academic achievers in electrical and mechanical technology at a community college.

is accepted at the $\alpha = 0.05$ level of significance, the level proposed for this study. The 95 per cent confidence interval of the difference between means of the second semester index was calculated. The limits were found to be from 0.101 to 0.913.

Twenty-six of the experimental subjects persisted compared to fourteen of the controls. The significance of this difference in persistence was tested by use of a sign test for matched pairs. This resulted in a "z" statistic of 2.95. Consequently, the experimental hypothesis:

> The use of the special treatment process reduces student attrition that takes place at the end of the second semester of a group of poor academic achievers in electrical and mechanical technology at a community college.

is accepted at the $\alpha = 0.05$ level of significance, the level proposed for this experiment.

The relationships of second semester grade-point-index and persistence with the treatment variable provided by the sponsor system, which were demonstrated within the limitations of this experiment, lead the investigator to recommend further research in this area toward improved pragmatic information and the development of theory.

Order No. 70-26,451, 127 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Story, Charles, Howard
(Last name) (First name) (Middle name)

Exact Title AN EVALUATION OF THE VISITING ENGINEER PROGRAM IN ENGINEERING DESIGN GRAPHICS AT TEXAS A&M UNIVERSITY.

Degree granted Ed.D., Date 1970 No. of pages in report 186

Granted by Texas A&M University College Station, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of the research was to evaluate the effectiveness of the Visiting Engineer Program at Texas A&M University. The program was established for the purpose of developing creativity, communication processes, and engineering problem-solving abilities in students of freshman graphics. In addition, students studied about the profession through selected readings, television tapes and consultation with professional engineers.

The survey method was used to obtain opinions of students, former students, and visiting engineer participants. With the assistance of faculty and engineer juries, five-point rating scales were formulated for obtaining specific reactions about the program—content, organization, experiences and recommendations.

A pilot study was conducted to test the validity of the proposed questionnaire instruments. The Friedman Two-Way Analysis of Variance was applied to the mean scores obtained from the questionnaire items. It was concluded that the samples were not drawn from the same population and there was a difference (significant at the .001 level) in the mean ranks of each column.

The students' phase of the study involved two questionnaire instruments, one after each visit by the engineers. Eight-hundred nineteen students responded to the first questionnaire, while 789 completed the second. Data were analyzed according to mean ratings and percentage responses; graphical methods were utilized for clarity and effectiveness of presentation.

The engineers' phase included instruments from five consecutive semester programs and an alternate form of the follow-up instrument. The latter instrument was sent to thirty-three visiting engineers who were participants in the fall program of 1969-70.

The follow-up phase utilized former students of engineering graphics. Responses were obtained from engineering students at all undergraduate levels at Texas A&M University. Scores were tabulated and reported in a manner similar to the student and engineer phases.

Responses of all three groups were compared by a graphical analysis of the mean scores of twelve specific items found in each of the instruments. A two-way comparison was used to determine opinions about the program experiences from the former students and visiting engineers.

The following conclusions were made in accordance with the limitations and assumptions stated for the investigation:

1. A review of literature revealed that college engineering students should be exposed to professional engineers and realistic design experiences as soon as possible.
2. Based on the findings of the survey, the program was found to be an effective method of introducing students to the profession of engineering.
3. The visiting engineers had a positive effect on student attitudes regarding goals of the program.
4. Based on the three-way comparison, it was concluded that the participants in the program were in general agreement as to the high degree of accomplishment of the program goals.
5. There was general agreement among respondents concerning the importance of graphical techniques in written reports and oral presentations.
6. Certain difficulties in writing the technical report were found to be concerned with organization of the team and individual assignments.
7. Most students reported some difficulty in organizing team efforts and establishing objectives during the earlier "free" periods in class.
8. The groups concurred that teamwork and creative design activities were highly valuable experiences for freshmen students in engineering.

The following recommendations were cited for future programs and research:

1. Periodic evaluations from engineers and students should continue.
2. Follow-up studies of the future should include Texas A&M engineering graduates working in industry and related fields.
3. Increased emphasis and instruction should be given to early stages of the team's design process.
4. The engineers' critiques should receive more emphasis regarding specific assignments of engineers and time requirements.
5. Continued emphasis on the technical report should be extended to include supplemental instruction about (1) team organization, and (2) examples of form and style.
6. Rating scales should be used more extensively in other fields of study to allow students to evaluate methods of instruction.

Order No. 71-8934, 186 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Strout, George, Milton
(Last name) (First name) (Middle name)

Exact Title THE NEW HAMPSHIRE TECHNICAL INSTITUTE DROPOUT ONE TO THREE YEARS LATER.

Degree granted Ph.D., Date 1970 No. of pages in report 193

Granted by Michigan State University East Lansin, Michigan
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The dropout has, for a number of years, been the subject of concern and study. However, few studies have been directed at determining what effect, if any, the dropouts, themselves, later attributed to their "brief" educational experience.

The purpose of this study was to determine whether the dropout, in his own estimation, had been affected by his "brief" exposure to post-secondary education at a technical institute.

Receiving particular attention in this study were (1) the dropout's original and current jobs and their relationships to his major field of study, his stated opinions concerning the effect his "brief" educational experience had on both his earning capacity and his obtaining a job and (2) the dropout's current status relative to furthering his education, his plans for further education, and his general evaluation of his "brief" educational experience.

The sample included the entire dropout population from two entering freshman classes (fall, 1965 and 1966) at the New Hampshire Technical Institute in Concord, New Hampshire.

The data-gathering instrument was a mailed questionnaire. The questionnaire was developed at the Institute and tested by a sample of ten members of the population. The questionnaire was mailed with a personalized letter. This mailing was followed up with a phone call and two further mailings as necessary. One hundred seventy-six (seventy-five percent) of the population of two hundred thirty-six returned usable responses.

The procedure for analysis included tabulating the responses by (1) the dropout's length of enrollment prior to withdrawal, (2) the dropout's reason for withdrawal, and (3) the total drop-out group. The length-of-enrollment categories used were one term or less, two terms, and three or more terms. Reasons for withdrawal were classified as either "academic" and "other than academic."

Dropout's response patterns by (1) length of enrollment and (2) reason for withdrawal were tested for statistically significant differences using the chi-square test.

Reliability and validity analyses indicated that consistent and accurate responses were being received on about eighty percent of the tested items.

The conclusions were:

1. The statement that students dropped out to accept well-paying jobs in the field of their education could be applied to less than 30 percent of these dropouts.
2. No statistically significant differences were found between the dropout's length of enrollment and his reported job-related status and attitudes.
3. In only one of four instances tested was there found to be statistically significant difference between the dropout's length of enrollment and his reported status in, plans for, and attitudes toward further education.
4. No statistically significant difference was found between the reason for withdrawal and the dropout's stated status in, plans for, and attitudes toward further education.
5. These dropouts generally reported that their educational experience was beneficial.
6. Generally, these dropouts have maintained a positive attitude toward and plan to return, within three years, to further education.
7. Though the length of enrollment for these dropouts did not appear to be related to their employment status, it was evident that dropout's classmates who graduated received substantial salary and transfer-credit benefits over dropouts. Therefore, graduation from these programs appeared to have substantial economic value.
8. The demands and pressures of the selective service and armed services, though not easily measurable, were undoubtedly of some significance during the period in which these dropouts were enrolled.
9. Follow-up studies of withdrawal students can be completed with a reasonable rate of response and with reasonable reliability and validity
10. The use of the telephone for follow-up purposes in studies such as this can be regarded as effective and worthwhile. This may be especially true when the forwarding of mailed materials is important.

Order No. 71-2171, 193 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Tatsch (Last name), Clinton (First name), Ezra (Middle name)

Exact Title A STUDY TO DETERMINE NEW DIMENSIONS FOR DEVELOPMENT OF TECHNICAL EDUCATION IN OHIO.

Degree granted Ph.D., Date 1970 No. of pages in report 258

Granted by The Ohio STate University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Ohio has become acutely aware of several major issues which will need to be solved. These major issues as they have appeared to the writer have been in enrollment and size of public technical institutes; the program and facilities developed and planned; the organizational structure of two-year campuses; and the administration and coordination of technical education in a system of higher education.

The study is based upon data received from the administrators of higher education from the twelve state area in the region of the North Central Accreditation Agency for Colleges and Secondary Schools and by review of Master Plans submitted by each state, where available.

Additional data was secured from the Ohio Board of Regents, State Department of Education, the Ohio State Employment Agency and from Economic Research Division, Department of Development, State of Ohio, on population employment areas, economic development, age and sex of Ohio's population, work force, and age levels of undergraduate students.

There are sixteen technical institutes in Ohio that are chartered under the State Board of Education and the Ohio Board of Regents.

Ohio has moved in the direction to design education and help meet the long-range challenge of our technological society, that is, to make education relevant to all concerned.

The evolution of the technical institute in the United States has been one of slow beginning, to rising to a stature of educational prestige. It became ambitious and expanded into the four-year college and then sank to the level of almost non-existence.

Unlike the national movement, the technical institutes of Ohio have been much more successful.

The organization, administration, and coordination of the public technical institute has been frustrating to vocational educators as well as higher education proponents. Clear distinction has been made and the technical institute can now be identified as post secondary and a part of collegiate education.

Research in this area has not been productive in developing recommendations for organization, administration and coordination of technical education. Therefore, the proposal of this subject should have some relevancy.

The new dimensions for technical education is a legislative matter. A bill was necessary to support and develop technical institutes. A technical college bill has been proposed to support the technical college. Should the idea of a plan for "seamless education programs" have merit, the legislature will need to become objective in its review of such a plan and establish a new organizational pattern for the future.

Geographical location of present combinations and location of additional centers of institutions of higher education must be further studied and then supported by state appropriated funds.

Programs must be comprehensive as well as accessible and provide the breadth of programs essential to meet the needs of the community. The technical institute or technical college will need to develop the ability to deal with a wide range of students that will be attracted and to stay relevant with societal needs and changes.

Order No. 71-18,096, 258 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Temple (Last name), Charles (First name), Marlen (Middle name)

Exact Title A STUDY OF THE VOCATIONAL NEEDS OF THE ALCOA, BLOUNT COUNTY, AND MARYVILLE SCHOOL SYSTEMS.

Degree granted Ed.D., Date 1970 No. of pages in report 278

Granted by The University of Tennessee (Name of institution) Knoxville, Tennessee (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purposes of this study were to determine (1) the vocational education needs of Blount County, Tennessee, (2) the public opinions of residents of the county toward vocational education programs, (3) the feasibility of consolidating the three school systems' vocational programs into one jointly supported program, (4) the vocational curriculum that would be relevant to the area, (5) and the educational facility in the three systems that could adequately house a countywide vocational program.

Eight groups of people participated in the study. These groups consisted of employers, voters, students of the three school systems (Alcoa, Blount County, and the Maryville Schools) in the ninth through twelfth grades, parents of these students, recent graduates, dropouts, parents of dropouts, and educators of the three school systems. Data relative to vocational needs, opinions toward vocational programs, feasibility of consolidation of Blount County's vocational programs, relevant vocational curriculum for the area, and adequacy of educational facilities for housing a vocational program were collected and tabulated. An analysis was made of these data in terms of the purposes of the study.

The study revealed that a definite need for both secondary and post-secondary vocational programs existed in Blount County. Public opinion was strongly in favor of vocational programs for high school students and adults, and the majority of each group participating in the study were strongly in favor of consolidation of the vocational programs. Vocational curriculums proposed by the eight groups were very similar and appeared to be relevant to the area. Evaluation of the educational facilities revealed the need for a new comprehensive high school and interim alternatives were proposed until the completion of a new educational facility.

Order No. 71-373, 278 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Thatcher, Glenn, Michael
(Last name) (First name) (Middle name)

Exact Title THE ANALYSIS OF THE EFFECT OF VIDEO TAPE RECORDINGS FOR SUBSTITUTE TEACHING.

Degree granted Ph.D., Date 1970 No. of pages in report 140

Granted by Southern Illinois Univeristy Carbondale, Illinois
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The Problem

This study was designed to evaluate the effectiveness of video tape recordings as an aid for substitute teaching.

Specifically, this study investigated the value of video tape recordings as an aid to the out of the area substitute teacher in an eighth grade mechanical drawing classroom situation. It was hypothesized that relevant video tape recordings would aid the out of the area substitute in carrying on the education process as effectively as the area substitute.

Procedure

There were four treatment conditions and two control conditions used in this study.

One control group consisted of eighth grade mechanical drawing students who were administered the pre and post test. The time period between testing was devoted to nonrelated material. The purpose of this control group was to establish the degree of learning that took place as a result of having taken the pre test. The data collected from this control group was subjected to the t test. With a t value of .5, it was concluded that no significant learning took place as a result of having taken the pre test. This finding suggested that any gains made in the treatment groups could be attributed solely to the treatment. In addition, the thought that some learning might have occurred from taking the pre test could be dismissed.

The remaining control group was comprised of ninth grade mechanical drawing students. These students were administered the pre and post test to determine the reliability of the tests. The data collected from this control group were subjected to the Pearson r test of correlation. The computed r value was .78. Thus, the existence of reliability was claimed.

The four treatment groups were composed of eighth grade mechanical drawing students in four different junior high schools within a common school system.

In treatment one, the students were subjected to an out of the area substitute teacher aided by a reading assignment and four exercise plates relevant to the orthographic projection concept. The students in treatment two were taught by an out of the area substitute teacher aided by a prerecorded video tape recording on orthographic projection, a reading assignment and four relevant exercise plates.

Treatment three consisted of a condition similar to treatment two with the exception of the reading assignment. In treatment three the reading assignment was not made available to the out of the area substitute. The students in treatment four were exposed to an area substitute teacher aided by a reading assignment and four exercise plates relevant to the concept of orthographic projection. Students in each of the four treatment groups were administered the pre and post tests separated by two days of respective treatment conditions.

Results and Conclusions

The results of the analysis of the data suggest that substitute teaching situations in eighth grade mechanical drawing can be educationally more productive. Since students who were subjected to treatments including video tape recordings made statistically the same understanding gains as did students subjected to the area substitute teacher situation, there are strong indications that relevant video tape recordings can be valuable tools in the out of the area substitute teaching situations. Further support was submitted when the results revealed that students in the video tape recording treatment groups and the area substitute group made significantly greater gains in the understanding of the orthographic projection concept than did those students subjected to the out of area substitute not aided by the video tape recording. There are also strong indications that the video tape recording might be a valuable aid for the permanently assigned teacher. It appears that organization and pre-planning may be the solutions to many of the substitute's problems.

The out of area substitutes aided by the video tape recording were interviewed upon the completion of the data gathering portion of the study. When asked how they felt about the video tape recorder as an aid for substitutes, they both agreed that it was a valuable aid. In addition, both substitutes remarked that the discipline problems that usually occur in a substitute teaching situation ceased to exist. They attributed this lack of discipline problems to thorough organization of the two day treatment period. One of the substitutes stated that there were no questions as to what was to be done on the part of the students or the substitute.

All the statistical and informal evidence presented as a result of this study indicated that substitutes can take their place as full partners in the education of our youth.

Order No. 71-2412, 140 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Thornton (Last name), Robert (First name), Willis (Middle name)

Exact Title AN INDUSTRIAL PLASTICS CURRICULUM FOR FOUR-YEAR COLLEGES AND UNIVERSITIES.

Degree granted Ed.D., Date 1971 No. of pages in report 93

Granted by University of Arkansas (Name of institution) Fayetteville, Arkansas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The Problem

The problem in this study was two-fold: (1) to identify and select course materials for the specific industrial plastics courses, and (2) to plan and structure a curriculum that will be most beneficial in training teachers of industrial plastics and industrial plastics technicians.

Procedure

A two-part questionnaire was used to collect the data needed to develop the four-year curriculum. Part One of the questionnaire was developed by dividing the critical areas into blocks of proposed courses. These blocks included the common classes offered in that area. Each class was given a five-point rating scale; when combined, these blocks of courses were Part One of the questionnaire.

The second part of the questionnaire consisted of blocks of industrial plastics processes and materials. Rating scales were assigned to the variables in these blocks in order to evaluate their importance for inclusion into specific industrial plastics courses. A five-point rating scale was used for both parts of the questionnaire.

A group of consultants representing a wide section of education and the plastics industry was used to rate the value of each of the variables in the questionnaire. These consultants hold positions of responsibility in education and in the plastics industry and have an interest in developing a four-year curriculum leading to teacher certification and to a degree in industrial plastics.

The over-all ratings received from the compiled questionnaires determined the final selection of classes and course content for the four-year curriculum.

Conclusions

From the findings in this study, the following conclusions were drawn:

1. The consultants indicated general agreement in their ratings of college courses for the curriculum to prepare industrial plastics teachers and technicians.
2. There was a general agreement among the consultants regarding the value of the materials and processes to be included in industrial plastics courses.

Recommendations

Based on the data collected and reported in this study, the following recommendations on selection of college courses appear feasible: (1) Human relations and economics are the two highest ranked courses in the business administration block. (2) Courses in the mathematics block are of considerable value. (3) With the exception of biology and geology, the courses in the basic science block were rated highest of all course blocks. (4) Several courses in the related technical courses block were ranked high. On the basis of high mean scores, quality control and testing, tool and die production, product design, industrial design, electricity, drafting, machine tools, and jig and fixture production were selected for inclusion in the curriculum.

The following recommendations concerning content of industrial plastics courses seem feasible based on the data presented in this study. If the institution has a strong program of related technical courses, these industrial plastics courses should be sufficient to meet the needs of industrial plastics teachers and technicians. The areas of content to be included in these three courses are:

A. Introduction to plastics materials and their properties.
B. Manufacturing methods and processes.
C. Plastics fabricating and finishing.

Order No. 71-19,547, 93 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Trego, John, W.
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE JOB REQUIREMENTS OF ELECTRONIC INDUSTRIES AND THE ELECTRONICS TECHNOLOGY CURRICULUM OF TEMPLE UNIVERSITY TECHNICAL INSTITUTE.

Degree granted Ed.D., Date 1958 No. of pages in report 156

Granted by Temple University Philadelphia, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The purpose of this investigation was to determine the extent of which the electronics technology curriculum of Temple University Technical Institute was meeting the job requirements of technicians as rated by employers in the electronics industry. Evaluation of the curriculum was made in terms of data gathered on the rated importance of specific knowledges, skills and understandings in the curriculum areas of electronics, mathematics, and physics.

The need for this study was emphasized in the literature where it was stated that the graduate of a technical institute is expected to be able to put his skills to immediate use in both large and small companies, varied job areas, and in any one of many types of industries. Therefore, it became essential that the curricula of technical institutes be closely adapted to the objectives of vocational placement and the specific needs of industry. This makes it imperative for each technical institute to determine the extent to which its curriculum are meeting the job requirements in the occupations for which training is given.

The device used to make inquiries concerning the problem for this investigation was An Inventory of the Knowledges, Skills and Understandings Required by Industrial Organizations Which Employ Electronic Technicians. The inventory was completed after it was submitted on a trial run basis to a selected list of industrial personnel and [illegible]ors. The final form of the inventory consisted of [illegible] items representing specific knowledges and skills with appropriate rating scales.

To add validity to the data collected, an attempt was made to include not only all known electronic companies on a national scale, but to invite personnel with varying [illegible] and responsibilities within each organization to participate in the study. Eventually, the printed Inventory of the Knowledges, Skills and Understandings Required by Industrial Organizations Which Employ Electronic Technicians, was mailed to a list of 250 persons in the electronics industry. As a result of all efforts, 175 usable responses were received from executives, engineers, personnel workers, and supervisors, representing 106 electronic companies or divisions of electronic organizations.

The descriptive information assembled from the inventories returned disclosed that the respondents were well qualified by title to make competent judgments and to give valid answers to the inventory. There was a desirable [illegible]ification of products and job areas of the participating electronic companies, as reported by the respondents. The primary service areas of the Technical Institute of Temple University, the Philadelphia area and the Middle Atlantic States region, were well represented by 67.4 per cent of the total responses to the inventory.

The method of expert opinion was utilized to determine the emphasis placed upon the separate inventory items by the electronics technology curriculum of Temple University Technical Institute. Ten members of the faculty were selected by the administrators of the program as those qualified to pass judgment upon the entire electronics curriculum. Evaluation of the curriculum was made in terms of the degree of emphasis placed by the faculty upon each specific knowledge and skill in the inventory as collated with the needs and desires of industry as expressed by the employers of electronic technicians.

The summary expression of relationship and interpretation within the context of the data, gave rise to the following conclusions drawn on the problem for this study.

1. A majority of the company executives, engineers, personnel workers, and supervisors were inclined to stress preparation in basic principles and fundamental skills, and to place considerably less importance upon achievement in the more specialized concept areas and skills.
2. The electronics technology curriculum of Temple University Technical Institute placed greater emphasis upon theoretical considerations of the technology than upon the more practical aspects.
3. Except in the development of some specific skills, the electronics technology curriculum as interpreted by the faculty of the Technical Institute of Temple University, has been rated as meeting or exceeding the job requirements of technicians as rated by employers in the electronics industry.

In general it was recommended that the faculty of Temple University Technical Institute give consideration to changes in course content and curriculum revision in light of the evidence presented in the study and the conclusions drawn.

Microfilm $2.05; Xerox $7.40. 156 pages.

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SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Tuthill (Last name), Russell (First name), ________ (Middle name)

Exact Title ESTABLISHING GUIDELINES FOR ADVERTISING ART CURRICULA IN THE TWO-YEAR COLLEGE.

Degree granted Ed.D., Date 1970 No. of pages in report 272

Granted by New York University (Name of institution) Washington Square, New York (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

As the number of two-year colleges swell at an unprecedented rate, the necessity for clarifying occupational curriculum objectives become more evident. This study was initiated to investigate the particular role of two-year degree granting programs that prepare graduates for careers in the field of advertising art. The investigation analyzed the nature of contemporary two-year advertising art curricula in American colleges and identifies the kind of professional preparation considered essential for successful careers in advertising art. The data presented in the study serve as the basis for curriculum recommendations designed to develop programs offering relevant and effective educational experiences for the aspiring advertising artist.

The first phase of the investigation examined the content, scope, objectives and organizational structure of 39 existing two-year degree granting advertising art programs. This was accomplished by a comparison of profiles developed for each of the 39 programs based on published catalog information. The second phase of the study explored the kind of professional preparation considered essential to the advertising artist by employers in the advertising art field. This was achieved through the analysis of 306 responses to a nationwide survey of supervisory personnel from a representative sampling of firms employing advertising artists.

The analysis of the 39 curriculum profiles indicated a general lack of agreement among the colleges as to the type of preparation considered most appropriate for students seeking careers in advertising art. This conclusion is supported by the discrepancies existing in the number and type of courses included in the programs investigated, the distribution of the credit value of the courses comprising the curricula and the placement of emphasis within the curriculum areas as indicated by hours of required classroom instruction. The findings indicated that curriculum variations are evident among colleges awarding similar degrees, in colleges from related geographic locations, receiving similar support (public or privately sponsored), operating on similar academic calendars or related in size of student body. The findings further revealed that while the colleges studied appear relatively similar in the prescribed nature of their programs and commitment to career preparation, the variety of subject matter offered as required study for the advertising art major indicates a lack of agreement by the schools in the selection of content used to attain their objectives.

The analysis of data provided by the responses to the survey of employers in the field of advertising art indicated a 95.8 percent level of agreement among the respondents in the identification of check list items describing abilities important to the professional success of the advertising artist. The findings identified specific skills, competencies and knowledge considered essential for beginning and experienced advertising artists regardless of the size, location or type of employer. The survey also revealed other aspects of professional preparation essential to the success of the advertising artist that imply that skills alone are not the only requisite for success in the field.

A comparison of the relationship between content presently included in two-year advertising art programs and the needs of artists entering the advertising field indicated that: (1) most of the existing programs are not making effective use of the time allocated for professional preparation, and (2) existing curricula tend to emphasize development of abilities and knowledge necessary for entry positions with little concern for the long range career needs of the artist.

The development of curriculum guidelines based on the data provided by the study indicated that the scope, content and organizational structure of a two-year course of study that meets the needs of the advertising art field and the individual needs of the aspiring advertising artist, can be determined. The guidelines presented in the study include recommendations related to the purpose, objectives, type of courses, sequences and placement of emphasis for traditional and quarter semester curricula.

Order No. 71-24,834, 272 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Vann, Lowell, Cecil
(Last name) (First name) (Middle name)

Exact Title TEACHING BASIC CERAMICS BY MEDIA PACKAGES ADMINISTERED IN FORWARD (HIERARCHICAL) SEQUENCE AND IN RANDOM SEQUENCE.

Degree granted Ph.D., Date 1970 No. of pages in report 127

Granted by The Florida State University Tallahasse, Florida
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this experiment was to determine the relative effectiveness of presenting instructions in a sequence based on the transfer implication of learning hierarchies versus a random sequence. A two-week unit in basic ceramics was prepared in the form of multi-media packages which could be sequenced in the two different fashions.

The course, designed for third year college level, had 3 units: ideas (plasticity and sketching), forming methods, and ceramic cycle. Over 100 competencies were written for the course and media were prescribed for these. The system devised for scoring, had a cumulative maximum of 400 points.

To test for a significant difference between the groups, the major hypothesis selected for the total test scores was: H_0: F-group mean = R-group mean. To further compare the accomplishment of the two groups according to the portions of the total course objectives, a similar hypothesis was made for each of the 3 unit objectives.

A review of relevant findings having bearing on the problem from the fields of art education, media, and structure and sequence was given. Searching for a study combining the fields yielded neither experiments nor proposed studies.

The population samples were instructed as whole-class sections, determined by results revealed by a pre-instruction survey. The F-group had 13 members, the random 14.

All multi-media materials were prepared for this course, through the model's ten steps, beginning with the statement of performance objectives and tying to these the testing measures and standards. Following this, there were steps for analysis of structure and sequence, media selection and prescriptions, tryout, course presentation and testing. The rationale for decisions within each step was given and actual materials were included in the appendixes. Fitting media to learning conditions determined use of slides, films, transparencies, audio sound recordings and printed materials.

The determined ideal sequencing of instruction (using task analysis and the levels of learning, with the necessary conditions, from Gagne) was presented to the F-group. A randomized order for R-group instruction was devised using a random number table for arranging sequencing.

The hypotheses, tested by *t* tests, two-tailed, revealed:
Main hypothesis: F-group exceeded R-group, significant at .05 level
Sub-hypotheses: Unit 1 (ideas), no significance
Unit 2 (forming), F-group, significant at .05
Unit 3 (cycle), F-group, significant at .05

Analyzing unit 3, containing 4 test measures, showed that on a measure for making a poster of the clay cycle there was no significant difference between the groups while on 2 written tests the F-group exceeded the R-group significant at the highest levels of all test measures, .01 and .02. The .01 measure was found for a retention test on the clay cycle given one week after the poster was submitted.

Raw data analysis revealed that the R-group had larger standard deviations and wider range of scores on most measures.

This experiment and related tryouts of materials found that efficiency and effectiveness were improved by using instructional media without lowering the quality of art production.

It might be concluded that the developmental model used in this experiment has more applicability in art for learning of cognitive facts and mixed tasks tying these together with skills. The least effective testing of the model was due to either of two factors: students' being separated in time from instructional presentation or their failure to hand in work (both applicable to each group).

Order No. 71-18,388, 127 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Voelkner (Last name), Alvin (First name), Ronald (Middle name)

Exact Title THE DEVELOPMENT AND EXPERIMENTAL EVALUATION OF AN INSTRUCTIONAL UNIT RELATING TO MANAGEMENT.

Degree granted Ph.D., Date 1970 No. of pages in report 134

Granted by Purdue University (Name of institution) Lafayette, Indiana (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to develop a comprehensive unit of instruction on management for use in the seventh and eighth grade industrial arts setting. A related research objective was to conduct an experimental evaluation of the instructional unit and the method of presentation.

Throughout the course of the study the instructional unit underwent evolutionary change. The final unit consisted of a content outline which contained from three to five illustrative examples of each of the management concepts to be presented to the students. A number of short exercises were also included in the unit. Seven organization charts were created as transparencies to be used with an overhead projector.

Three separate experiments were performed using intact groups of junior high school students. One cooperating classroom teacher presented the content on management to three seventh grade classes of industrial arts students. A fourth seventh grade class received non-related content and served as a control group.

A second cooperating teacher at another junior high school presented the content on management to one seventh grade and one eighth grade class of industrial arts students. Both of these groups were compared with seventh and eighth grade control groups respectively.

A researcher-developed multiple choice type criterion test was used to assess student mastery of content. A non-equivalent control group experimental design was used. Analysis of covariance was used to analyze the data collected during the study. Pre-test scores were used as the covariate in the analysis.

When research hypotheses were tested, at the .05 level of statistical significance, the following results were obtained:

1. With the exception of one treated group, there was a significant difference between the mean achievement test scores of students who were exposed to the experimental unit of instruction and those who made up the control groups.
2. There was no significant difference between the mean achievement test scores of seventh grade students exposed to the experimental unit of instruction and eighth grade students exposed to the experimental unit of instruction.
3. When all data for the experimental groups were pooled, and each group compared with every other group, there was a significant difference between the mean achievement test scores of some groups while other comparisons yielded no significant differences.

As a result of this research, a field-tested unit of instruction on management was developed. Experimental evidence demonstrated that: (1) the unit of instruction was effective for teaching principles of management in the industrial arts setting; (2) that eighth grade students did not achieve at a higher level than seventh grade students; and (3) that students exposed to the content in separate classes differed significantly in their mastery of concepts of management.

Order No. 71-2704, 134 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Walker (Last name), Joe (First name), Wayne (Middle name)

Exact Title A COMPARISON OF THE EFFECTIVENESS OF TWO APPROACHES TO TEACHING ENGINEERING DRAFTING.

Degree granted Ed.D., Date 1970 No. of pages in report 118

Granted by North Texas State University (Name of institution) Denton, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The problem of the investigation was a comparison of two approaches to teaching engineering drafting at the college level. The study was conducted for an eighteen-week period, and involved sixty-four subjects in the experimental group and sixty-three subjects in the control group.

The purpose of the study was to determine the relative effectiveness of the idea-communication approach to teaching engineering drafting, as compared to the typical unit approach. The bases for comparison were acquisition of general drafting knowledge, critical thinking ability, and ability to produce a working drawing.

The control group was taught by the typical approach of a series of units of study. The experimental group was taught with a series of problems which necessitated simultaneous use of information from several units, and emphasis was placed on the total representation of each object.

Statistical computations employed scores obtained from a working drawing assignment at the end of the semester, and mean gain scores on *General Drafting: A Comprehensive Examination* and the *Watson-Glaser Critical Thinking Appraisal, Form YM.* Analysis of covariance and the Fisher *t* test of significance techniques were utilized to test the hypotheses.

The following conclusions were formulated from an analysis of the findings of the study.

1. With regard to general drafting knowledge, the typical unit approach to teaching engineering drafting is no more effective than the idea-communication approach.
2. In the development of critical thinking ability, the typical unit approach to teaching engineering drafting is no more effective than the idea-communication approach.
3. With regard to ability to produce working drawings, the typical unit approach to teaching engineering drafting is no more effective than the idea-communication approach.
4. Students with higher levels of critical thinking ability attain a greater degree of general drafting knowledge than students with lower levels of critical thinking ability.

Order No. 71-8694, 118 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Walston (Last name), Harry (First name), Wade (Middle name)

Exact Title AN INDUSTRIAL SURVEY TO DETERMINE CRITERIA FOR A PROGRAM GUIDE FOR DRAFTING AND DESIGN TECHNOLOGY IN TEXAS JUNIOR COLLEGES.

Degree granted Ph.D., Date 1970 No. of pages in report 225

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of research.—The objective of this study was to identify through industrial survey essential requisites for employment in occupations requiring training in drafting and design technology.

Procedure of research.—A survey instrument was designed to explore, through occupational analysis, the requirements inherent to predominant areas of industrial drafting specialization. Instructional topics for drafting technology programs were evaluated according to a ten-point rating scale by field specialists. The criteria for evaluation was the occupational value of the item to the company. A five year projection of the relative value of the instructional topics was obtained concurrently with the industrial evaluation.

The questionnaires were submitted to a stratified sample of 565 industrial concerns selected on the basis of: (1) area of specialization; (2) volume of employment; and (3) regional location.

Application of research.—The ultimate goal of the project was the development of a portion of a planning guide to implement drafting and design technology programs in Texas junior colleges. Industrial requisites were presented in the form of descriptive statistics to facilitate the analysis of the material by drafting instructors. The industrial specifications were submitted to the Texas Education Agency in the form of a document to be used as a planning tool by any person or group designated with the responsibility of establishing or upgrading junior college drafting and design technology programs.

Recommendations.—The following recommendations were submitted as a result of the study:

1. Drafting and design technology program representatives should develop, maintain, and administer modes of reciprocal communication with local industry.
2. Industrial knowledge should be considered a potential institutional resource and be utilized to supplement and upgrade drafting technology programs.
3. Follow-up studies of drafting technology graduates and industrial concerns employing drafting and design technology students should be periodically conducted to evaluate the effectiveness of the program.
4. The service region should be periodically surveyed to insure the program offerings are parallel with the needs of the community.
5. Existing advisory councils should be encouraged to actively participate in area-vocational planning and administration.
6. Instructors competency should be concurrent with industrial development and progress.

Order No. 71-8920, 225 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Ward (Last name), Darrell (First name), Lin (Middle name)

Exact Title VOCATIONAL EDUCATION COMPETENCIES IDENTIFIED FOR LOCAL LEADERS OF OCCUPATIONAL EDUCATION.

Degree granted Ed.D., Date 1971 No. of pages in report 112

Granted by Oregon State University (Name of institution) Corvallis, Oregon (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Competencies essential for the adequate performance of vocational education leadership roles were investigated in this study. Methods of preparing individuals for these roles were also considered. Answers to two basic questions were sought as base data on which future programs of occupational education leadership might be built. These questions were:

1. What competencies must be possessed by leaders in occupational education?
2. How can the essential competencies for occupational education leaders best be developed?

A list of competency items thought to be needed for effective leadership was identified through the review of literature and during study of existing leadership development programs. This list of competency items was studied and revised by more than 160 present leaders of vocational education who participated in Oregon's Program of Vocational Education Leadership Development Seminars during 1966.

Competency items were rewritten and incorporated into a questionnaire utilizing a Likert type scale to obtain a rating for each of the 50 items. The questionnaire was then administered to 134 leaders of vocational education in Oregon and to ten national leaders. An 88 percent return was received from the Oregon population and a 100 percent return from the national population.

The mean rating for each competency item was computed and the items ranked according to their mean ratings. Rankings were determined for each subgroup of the total Oregon population as well as for the national panel and the total Oregon population. Application of the Chi Square test to each competency item did not indicate significant difference in the way the national panel rated each item as compared to the Oregon study population. When the Spearman rank coefficient statistic was used to measure the degree of association between the competency items' ranking by the two study populations, a positive correlation was determined.

The findings of this study have identified a list of 40 competencies which, in all probability, are essential to the adequate performance by occupational education leaders. These competencies are most applicable to Oregon needs but should also be generally applicable to other states. The findings also indicate that the best method of preparing an individual for most competencies is a combination of course work and internship experience. The list of essential competencies identified can serve as a base on which to build future programs of vocational education leadership development.

Order No. 71-2481, 112 pages

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Washburn (Last name), Kenneth (First name), Reburn (Middle name)

Exact Title A COMPARATIVE ANALYSIS OF THE MATHEMATICS USED IN INDUSTRY BY ELECTRONIC TECHNICIANS HAVING AN ASSOCIATE DEGREE

Degree granted Ed.D., Date 1971 No. of pages in report 172

Granted by University of Northern Colorado (Name of institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of this study was to collect data to determine the mathematical concepts used in every day industrial work by technicians in the area of electronics. Answers to various questions were sought concerning information regarding graduates of New Mexico Highlands University as well as graduates of other electronic institutions who were working in industry. Specifically, the study was conducted to find answers to the following questions:

1. What mathematical concepts are actually used by the electronic technician working in industry?
2. What levels of technician work are the graduates performing?
3. How do New Mexico Highlands University graduates compare to other graduates as to mathematical background and classification of jobs held?
4. Do graduates feel adequately prepared in mathematics to effectively meet the demands of their job?
5. Who should teach the mathematics to the electronic technician and should the mathematics be structured using electronic principles?

Method of the Study

The method and procedure utilized in this study were descriptive. Sources used in the construction of the instrument were (1) related studies which had established the basic concepts deemed necessary by industrial personnel and educators, (2) textbooks pertaining to mathematics for electronic technicians, and (3) a course syllabus of required mathematics for electronic technicians at New Mexico Highlands University. Questionnaire forms were mailed to 55 graduates of the New Mexico Highlands University technology program and to 115 graduates of other institutions who were working in industry.

Findings and Conclusions

The study revealed that a wide range of mathematical concepts were used in industry by electronic technicians. Lower level jobs required the use of basic mathematics, whereas, the high level jobs required the use of calculus. The majority of the tasks performed by electronic technicians required the use of algebraic and trigonometric concepts.

The data indicate graduates were found in all levels of technician work but a majority were found in the higher level jobs. The data provided a basis for the conclusion that low level jobs were held by a majority of non-degree personnel.

One hundred per cent of the New Mexico Highlands University graduates had a background in calculus as compared to 71.3 per cent of the other graduates. It may be concluded that New Mexico Highlands University graduates were generally better prepared in mathematics than graduates of other institutions. In general, the data showed little difference between the two groups as to the job held. Over the entire survey the computed chi square showed little significant difference of the two groups used in the survey.

The majority of the graduates felt adequately prepared in mathematics to perform the duties required of their job. There was evidence that some technicians felt over-educated in mathematics. Thus, much of their mathematical background remains dormant since they were not required to use it.

The data revealed a desire of the technicians to have mathematical courses structured using electronic principles and to have the electronic technology department teach the mathematics.

Recommendations

1. Electronic technology departments and industrial personnel should examine their programs to determine if the requirements are unrealistic in terms of producing qualified personnel for the wide variety of technician jobs.
2. An outlet should be made available for those students desiring to work in the lower level jobs as well as those unable to pass the higher mathematics requirements.
3. Electronic programs should be designed to train the middle level technician and provide a course in calculus as an option for those desiring to work in the higher level jobs.
4. The electronics and mathematics departments in the institutions should work together to construct a mathematical program that will be more relative to the field of electronics and, thus, more meaningful to the technician.

Order No. 71-26,838, 172 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Weir (Last name), Eldon (First name), Lee (Middle name)

Exact Title AN EXPERIMENTAL EVALUATION OF SELECTED PRINTED GRAPHIC COMMUNICATION MEDIA FOR RECRUITING INDUSTRIAL ARTS AND TECHNOLOGY STUDENTS.

Degree granted Ed.D., Date 1970 No. of pages in report 260

Granted by Arizona State University (Name of institution) Tempe, Arizona (City, State)

Where Available: Microfilm (☒) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to investigate the effectiveness of printed graphic communication media in recruiting undecided male freshmen into classes in the Industrial Arts and Technology (IA&T) Division at Central Missouri State College. Undecided freshmen were those who had not decided on a major field of study. Effectiveness was determined by whether or not undecided freshmen enrolled in IA&T classes and by whether or not the media propagated more knowledge and more favorable attitudes relative to industrial arts and technology. Relationships between knowledge of industrial arts and technology and attitudes toward industrial arts and technology were examined.

The 252 students in the sample were not enrolled in an IA&T class at the time the experiment began. They were randomly assigned to one of two experimental groups or to a control group. Each experimental group had 85 students and the control group had 82.

Treatment materials for one experimental group consisted of 14 folders divided into three sets and mailed at three-week intervals during the 1969 fall quarter. Materials for the second experimental group consisted of three newsletters written and printed during the experiment and mailed at the same times as the folders. The newsletters were written to convey more current and more personal information than the folders. The control group received no recruitment materials.

A posttest-only control group design was utilized. Enrollments into IA&T classes were recorded for two quarters following treatment. Knowledge and attitude criterion measures were collected near the end of the 1969 fall quarter. The knowledge test was a true-false and multiple choice test, and attitudes were measured by a semantic differential applied to each of the following four concepts:

1. "Students Who Major in IA&T at CMSC."
2. "Me as an Industrial Technician."
3. "Me as an Industrial Arts Teacher."
4. "High School Industrial Arts Courses."

All differences or relationships were tested at the .05 confidence level.

From the newsletter group, nine students enrolled in IA&T during at least one of the following two quarters, while the folder group had seven enrollees and the control group had five. Chi square was used to ascertain that observed and expected enrollments did not differ significantly.

Analysis of variance and orthogonal comparisons revealed that the newsletter group had (1) significantly greater knowledge of industrial arts and technology than the control group, (2) a significantly more positive attitude toward "students who major in IA&T" than the folder group, the control group, or the average of the folder and control groups combined, and (3) a significantly greater positive attitude toward "me as an industrial technician" than the control group, or than the average of the folder and control groups combined. No significant differences were found among the groups for the other two attitudinal concepts.

Knowledge of industrial arts and technology information was directly related to (1) attitude toward "students who major in IA&T" within the control group, and (2) attitude toward "high school IA courses" within the newsletter group.

Enrollees from the folder group who displayed more knowledge of industrial arts and technology had less positive attitudes toward "students who major in IA&T"; but the enrollees from the control group who had greater knowledge of industrial arts and technology had more positive attitudes toward "me as an industrial technician" and "me as an IA teacher." Newsletter group enrollees had a direct relationship between knowledge and attitude toward "me as an industrial technician," while an inverse relationship existed among newsletter group non-enrollees.

The results generally showed the more current and more personal periodic newsletter to be somewhat preferable over the folders or no media for recruiting undecided freshmen. Suggestions were made for further study.

Order No. 71-5986, 260 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Welsh (Last name), Barton (First name), William (Middle name)

Exact Title A HYPOTHETICAL MODEL FOR AN OPTIMUM HIGH SCHOOL PRACTICAL ARTS AND VOCATIONAL EDUCATION PROGRAM.

Degree granted Ed.D., Date 1971 No. of pages in report 340

Granted by University of California (Name of institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study

The purpose of this study is to identify and describe a hypothetical program of Practical Arts and Vocational Education, which will incorporate the more promising, innovative and exemplary concepts and principles of program planning and implementation. Currently, there are countless prospective changes to be seen in educational programs. Some of the better known of these are things such as flexible scheduling, team teaching, continuous progress education, programmed instruction, multimedia instruction and independent study. It was the purpose of this research to identify, study and evaluate these changes or techniques and incorporate those portions which proved to be most meaningful and which can be used best in the high school Practical Arts and Vocational Education Program. This program will enable more students to take Practical Arts and Vocational Education with a greater amount of subject matter.

Design of the Study

The data for this study was obtained by three primary methods. They are: (1) A review of the related literature dealing with the teaching of Practical Arts and Vocational Education. Many exemplary and innovative programs have been written up in the literature that are included in part in the model. (2) Personal visits and contact with exemplary and innovative programs. A great number of programs were reviewed by this means and much information compiled. (3) Review of the elements by Practical Arts and Vocational Education administrators. All materials included in the model were reviewed by means of a questionnaire. This was sent to 108 administrators. An 82% return was experienced.

Principal Findings

An optimum program of Practical Arts and Vocational Education should include the following elements:

1. A great deal of flexibility in student scheduling. Flexible modular scheduling should be included.
2. The student's day should include classes that meet late afternoon and evening. School should be able to adjust to fit student's work experience schedule.
3. Classes should be held both on and off campus. Many classes should meet in "community classrooms" in business or industry.
4. Course credit should be given for skills and knowledges gained and be based on performance objectives.
5. Teachers should be academically qualified and have actual on-the-job experience in business or industry.
6. Teachers should be "Learning Managers" and organize classroom personnel into learning teams.
7. In-service training for teachers should include keeping current with business or industry experience and development.
8. Teacher aids or para-professionals should be used to free teachers of routine or clerical type tasks.
9. The curriculum should be based on providing each student with a salable skill.
10. The curriculum should be offered in "Micro and Mini" courses and not in semester or year-long programs.
11. The curriculum and physical facilities should be designed for use with team teaching.
12. Instruction should be offered to a large extent by the use of multimedia materials. It should be as individualized as much as practical.
13. Practical Arts and Vocational Education should be for all students. Both college-bound and terminal students need Practical Arts and Vocational Education.
14. A Pass-No Mark grading system should be included.
15. Guidance personnel should assist students with matching interest and ability in career selection.
16. Guidance personnel should be academically qualified and have actual on-the-job experience in business or industry.
17. Evaluation should be a built-in part of every Practical Arts and Vocational Education Program.

Order No. 71-19,464, 340 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wenig (Last name), Robert (First name), Emery (Middle name)

Exact Title THE DEVELOPMENT AND TESTING OF AN INNOVATIVE TOTAL PROGRAM EVALUATION SCHEMA FOR INDUSTRIAL ARTS EDUCATION.

Degree granted Ph.D., Date 1970 No. of pages in report 423

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The problem of major concern to the study was how to provide useful information about the strengths and weaknesses of industrial arts curricula and other instructional items so that the educational consumer can make informed decisions. In essence, what programs do or do not work with various students under different learning situations could not be determined by using the present type of program evaluation techniques.

What was needed to solve the problem was a total program evaluation schema. This schema was designed to delineate, obtain, and provide useful information to decision makers about instructional programs and its interlocking factors prior to, during, and after program development is complete.

The main purpose of the study was to develop and test a total program evaluation schema for providing useful information to educational consumers about industrial arts programs. This process allows the consumer of industrial arts products to assess his present program for making the decision on whether to continue, modify, or terminate. If the decision is made to terminate the program, the schema provides a means to evaluate the researching, developing, and testing of a new program.

The procedure or method used to solve the problem was first to develop a theoretical evaluation model to guide and direct the development of an operational evaluation model. This was accomplished by developing premises from the results of a survey instrument. The instrument statements were derived from the review of selected literature and pilot tested. The instrument was mailed to selected generalists in educational evaluation and industrial arts educators. The statements were rated on a Likert scale to determine what the respondents felt evaluation should be.

The responses were collected, organized, and analyzed to determine which twenty-statements received the highest number of points. These twenty statements or premises along with eight other premises served as the twenty-eight criterion measures used to select two preliminary theoretical evaluation models from a group of six. A second set of criterion measures was used to make a final selection of the theoretical model.

An operational evaluation model was constructed by applying the rationale from the selected theoretical evaluation model, a management decision process, and a systems theory technique. These three elements form the basis of an innovative evaluation schema.

An important part of the evaluation schema was the development of an overarching questioning process. It was designed to elicit questions that the evaluation schema should answer in providing useful information to the decision maker. This process included questions from an overarching questioning matrix, Project Talent, and questions from other sources such as decision makers. The questioning matrix was emphasized since it provided the means for systematically combining the three dimensions of population, program, and behavior to formulate questions.

The operational evaluation model was called Industrial Arts Systems Information Service which was identified by the acronym IASIS. IASIS was tested through simulation and reviewed by experts from the fields of educational evaluation, systems theory, and industrial arts research.

Within the limits of the study the following conclusions were reached: (1) the survey instrument caused the respondents a measure of frustration which perhaps could have been corrected by using the research techniques of Q-sort, factor analysis, or a clustering process; (2) the premises adequately provided the rationale for selecting the best theoretical model required for constructing the operational evaluation model; (3) the questioning matrix provided a systematic and logical means to identify the right questions; (4) by combining the knowledges from the selected theoretical evaluation model, the management decision process, and the systems theory approach an operationally sound total program evaluation schema was developed called IASIS; (5) IASIS was considered to be logical and operative as determined by experts in educational evaluation, systems theory, and industrial arts research; and (6) through simulation IASIS was given an effective testing of its efficacy and provided a means for increasing its understandability.

Order No. 70-26,387, 423 pages.

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SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wiersteiner (Last name), Samuel (First name), Richard (Middle name)

Exact Title A Q STUDY OF THE PERCEPTIONS OF THE OCCUPATION OF VOCATIONAL TEACHING AS HELD BY TWO GROUPS OF TWO-YEAR COMMUNITY COLLEGE STUDENTS.

Degree granted Ph.D., Date 1970 No. of pages in report 107

Granted by The Pennsylvania State University (Name of institution) University Park, Pennsylvania (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Problem

The recruitment of teachers is a constant problem for administrators of vocational programs. One aspect of recruitment is the occupational image of vocational teaching. By more clearly understanding the differences in the perception of vocational teaching as manifested by potential vocational teachers, their reaction to recruitment might be better understood.

The purpose of this study was to determine what, if any, differences existed in the perceptions of employment as vocational drafting teachers held by two groups of community college students. The study was based upon four questions:

1. Is the inclination to choose or reject the occupation of vocational teaching congruent with different perceptions of the occupation?
2. What perceptions are associated with "positive" and "negative" attitudes toward vocational teaching as an occupation?
3. Are the values of those inclined to choose teaching different from those who are not inclined to choose this occupation?
4. Are the factors underlying "positive" perceptions of teaching the same as or different, in character, from those underlying the "negative" perceptions of teaching?

Procedure

The subjects utilized in this study were 56 two-year drafting students from eight community colleges of the Commonwealth of Pennsylvania. These 56 subjects were selected from a group of 100 drafting students on the basis of upper and lower 27 per cent of the scores on an attitude instrument entitled "Vocational Teaching as an Occupation."

The 56 subjects were asked to complete an interpersonal values inventory and a 90-item Q sort consisting of statements about vocational teaching as an occupation. The interpersonal values inventory was a commercial instrument while the Q sort consisted of statements selected at random from a population of statements generated by vocational students. Certain statistical tests were performed on the collected data in order that objective conclusions could be drawn regarding perceptions of vocational teaching as an occupation.

Findings

Comparison was made between the subjects' mean scores on each of the six scales of the Survey of Interpersonal Values by means of the *t* test for means. Significant differences were found for three of the scales.

The item scores of the Q sort for each group were inter-correlated and the resulting matrices subjected to factor analysis. Five factors were extracted from each matrix and subjected to varimax rotation.

In order to determine whether the within-group differences were greater than the differences between groups, within-group indices of congruence of factors (one-half group versus one-half group) were computed. The indices indicated high agreement within each group on the perception of the occupation of vocational teaching.

Indices of congruence were also calculated for comparison of factors between the two groups. These indices indicated a large difference between the perceptions of the two groups.

In order to name the rotated factors and thus be able to characterize the perceptions of the two groups, factor arrays were calculated. These arrays placed the items of the Q sort in rank order for each factor.

Order No. 71-6372, 107 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Willems (Last name), Alvin (First name), Earl (Middle name)

Exact Title A COMPARISON OF TOW FORMS OF COGNITIVE QUESTIONING APPLIED TO THE LEARNING OF SELECTED TECHNOLOGICAL INFORMATION AND SKILLS.

Degree granted Ed.D., Date 1970 No. of pages in report 101

Granted by Utah State University (Name of institution) Logan, Utah (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The purpose of this study was to collect and analyze data relevant to the application of higher cognitive questioning to one of two parallel classroom groups. The attempt was to determine the value that the higher forms of cognitive questions may have in the learning of selected technological information and skills.

Specifically, the objectives of this study were: (1) to review the literature pertaining to classroom questioning, particularly higher cognitive questioning as a means of improving instruction; (2) to make a comparison of differences in learning between two classroom groups resulting from the application of the higher forms of cognitive questioning to one classroom group; and (3) to make a comparison of differences in response to course materials and content resulting from the application of the higher forms of cognitive questioning to one classroom group.

This study was conducted using subjects, which were naturally assembled collectives, having been selected on the basis of enrollment convenience. The research model involved two classroom groups, an experimental group and a control group, but in which the groups did not have pre-experimental sampling equivalence. The subjects were enrolled in parallel sections of an aerotechnology course.

The cognitive level of questioning, applied routinely during the presentation of course materials, was the basis of the differential treatment with all other aspects of the course material remaining identical for the two groups. The questions for Group I (control group) were structured at the knowledge or factual level, the first level as outlined by Bloom.[1] The subjects in this group were not enjoined from making deductive leaps; they simply were not required to do so.

The questions for Group II (experimental group) were structured at the highest-cognitive level found to be practical for the material presented. The higher-cognitive level of these questions was the substance of the differential treatment.

A pre-test and a post-test were administered to both groups; the test being identical in all instances. The laboratory exercises for both groups were identical in every aspect. A daily log was maintained for the specific purpose of noting questions asked by the subjects and for the general purpose of noting differences in response to course materials by the subjects.

The data for this study were analyzed using a variety of statistical procedures. Essentially, the data were gathered, analyzed, and expressed in terms of mean scores for Groups I and II.

The specific findings related to objectives two and three of this study. The results, as measured by the test instrument, indicated no significant difference in learning between Groups I and II. The difference in learning, as measured by achievement on laboratory exercises, indicated greater achievement by Group II. This difference was found to be significant at the .01 level.

Student questions, emanating from Group II, were found to rank higher cognitively when rated by a panel of judges working independently. This difference was found to be significant at the .01 level.

And finally, the results of the correlational analysis, applied to test and extent of interjudge agreement, were described as satisfactory with some correlations established at .97.

Within the limitations of this study and to the extent that the measurement was accurate and valid, the following conclusions were drawn: (1) question asking by students is directly related to laboratory achievement or success in the practical aspects of a technical course, and (2) higher-cognitive questioning by the instructor will, in turn, elicit higher-cognitive questioning behavior by students.

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[1] Benjamin S. Bloom, *Taxonomy of Educational Objectives Handbook I: Cognitive Domain* (New York: David McKay Company, 1956), p. 18.

Order No. 70-27,018, 101 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wilson, Roger, John
(Last name) (First name) (Middle name)

Exact Title AN INVESTIGATION OF FACTORS ESSENTIAL TO SELECTING AND PREPARING ON-THE-JOB TRAINERS FOR A POST SECONDARY COOPERATIVE VOCATIONAL-TECHNICAL EDUCATION PROGRAM.

Degree granted Ph.D., Date 1970 No. of pages in report 150

Granted by The Ohio State University, Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

The revolutionary idea of cooperative education was introduced in 1906, in the College of Engineering at the University of Cincinnati. It was an educational technique designed to help students bridge the gap between school and employment by developing a working partnership between the college and industry. During the past sixty years this unique method of education has grown. First, in the baccalaureate engineering colleges, then the vocational high schools, and finally in the post secondary two-year technical institutions.

The recent accelerated growth of cooperative education programs in the two-year technical schools established the need for this study. Its purpose was to investigate the present practices of selecting and preparing the on-the-job trainer assigned to a student-learner during the employment period of an educational program.

In order to establish a background for the study it was necessary to review the purpose and philosophy of cooperative education as it was conceived by Dean Herman Schneider and refined over the years by other educators. Also, it was necessary to review the attitude of employers toward employee training and the methods used for training regular full-time personnel.

To ascertain the present practices of selecting and preparing on-the-job trainers it was necessary to interview teacher-coordinators and cooperating employers associated with two-year technical education programs. This task was accomplished by selecting a study sample consisting of nine institutions in three states; Michigan, New York, and Ohio. The sample provided an opportunity to interview sixteen teacher-coordinators and fourteen cooperating employers. Interviews with the cooperating employers were used to achieve reliability or an external check on the data collected from the teacher coordinators.

An analysis of the interview findings lead to the conclusion that on-the-job trainers were assigned to student-learners enrolled in a post secondary cooperative vocational-technical education program. Regarding the selection of the on-the-job trainer it was concluded, as a result of the study, that the teacher-coordinator had control of the selection process through their approval or disapproval of the cooperating employer. It was further concluded, however, that once an agreement was reached to place a student with a cooperating employer, the management of that firm made the decision as to which of its employees would be assigned to the on-the-job training task of the student-learner. Although employers were apparently aware of the characteristics found in the better on-the-job trainers, they did not consider these factors in selecting the on-the-job trainer for cooperative student-learners. Instead, they simplified their selection process by assigning the student-learner to the supervisor responsible for the position filled by the student.

It was also concluded from the interview findings that the on-the-job trainer was given little if any planned preparation before he undertook his teaching task. In addition, it was concluded that neither the teacher-coordinator nor the cooperating employer were taking advantage of existing programs in either the adult evening program of the school or the management training program of the firm to assist the on-the-job trainer establish a systematic method of instruction.

Order No. 71-18,106, 150 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Witt, Henery, Frederick
(Last name) (First name) (Middle name)

Exact Title AN INTERPERSONAL PROFILE OF AREA SCHOOL INSTRUCTORS

Degree granted Ph.D., Date 1971 No. of pages in report 128

Granted by Iowa State University Ames, Iowa
(Name of institution) (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

This study was designed to investigate the interpersonal profile of instructors in the Iowa area community colleges and vocational technical schools.

All of the data used in this study were taken from the results of the survey instrument FIRO-B, an instrument designed specifically to measure the behavior of people in interpersonal situations.

In the FIRO-B theory, three fundamental interpersonal dimensions are measured; inclusion, control and affection. In addition, two aspects of behavior are assessed in each dimension; the behavior an individual expresses toward others and the behavior he wants others to express toward him.

The sample consisted of 69 effective instructors and 69 instructors new to area school teaching in the fall of 1970. These faculty members were selected from the fifteen colleges that make up a state system of area schools.

The statistical treatment included frequency distributions, means and standard deviations, and analysis of variance.

Evaluation of the data revealed no significant difference between the groups of instructors. As a group, these instructors showed an interpersonal tendency in the following dimensions:

1. Inclusion - Little desire to be near people and selective with whom they associate.
2. Control - Little desire to make decisions or accept responsibility and yet not wanting others to control them.
3. Affection - Selective and cautious about forming close personal relationships with others.

Order No. 71-26,903, 128 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wolfe (Last name), James (First name), Madison (Middle name)

Exact Title UTILIZATION OF THE SINGLE-CONCEPT-SOUND FILM IN THE GRAPHIC ARTS TO ASSIST STUDENTS WHO HAVE READING COMPREHENSION PROBLEMS.

Degree granted Ph.D., Date 1970 No. of pages in report 173

Granted by East Texas State University (Name of institution) Commerce, Texas (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of the Study: The primary objective of this research was to determine if the single-concept film with narration on magnetic tape was as beneficial as the textbook to assist students in the graphic arts who have difficulties comprehending printed materials. To develop this objective a study was made to ascertain if the single-concept film with sound could be more beneficial than the textbook with those students in the graphic arts who have reading comprehension difficulties.

Procedure: The population for this study consisted of seventy students enrolled in one section of Photography 181 at Sam Houston State University, Huntsville, Texas, during the spring semester of 1970. Selection for participation was based on the students' American College Test scores.

In conducting the experiment, fifty per cent of the population was placed in the experimental group and fifty per cent in the control group. To measure the achievement of both groups, a fifty-item multiple-choice test was designed which was used as a pre-test, post-test, and retention test. Administration of the pre-test was two weeks after the first day of spring registration. The post-test was given after the film group had viewed the four single-concept films and the book group had read the textbook. Two weeks after the post-test, the retention test was administered.

Both groups covered the same basic content material. The experimental group utilized four single-concept-sound films in which the subject matter was related to the function of the photographic lens. This information was introduced to the book group with the selected textbook utilized in all freshman photography courses at Sam Houston State University.

An analysis of the achievement of both groups was made. To determine the significant difference between the mean scores of the two groups, the *t*-test was utilized. The F-test was administered to analyze the standard deviation variances.

Findings and Conclusions: From the research it was concluded that the single-concept film with sound was as beneficial as the textbook to aid students who have difficulties comprehending printed materials. It was also concluded that the students who utilized the film medium retained more of the subject matter information than the group who utilized the textbook. The research indicated that:

1. No significant difference existed between the mean of the film group and the mean of the book group on the pre-test.

2. A significant difference greater than the .001 level of confidence was found between the group mean of the pre-test and the group mean of the post-test for both groups. A significant difference at the .001 level also existed between the group mean of the post-test and the group mean on the retention test for film groups.

3. There was no significant difference between the mean gains from the pre-test to the post-test of both groups. Likewise, no significant difference was found between the mean gains from the post-test to the retention test of the groups.

4. A significant difference at the .01 level of confidence existed between the standard deviation variances on the retention test of both groups. The standard deviation of the experimental group on the retention test was significantly different than the standard deviation of the control group.

Order No. 71-18,625, 173 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wood, Grant, Ree
(Last name) (First name) (Middle name)

Exact Title PROBLEMS, PRACTICES AND PERCEPTIONS OF MISSOURI COUNSELORS IN THE SELECTION, PLACEMENT AND FOLLOW-UP OF VOCATIONAL EDUCATION STUDENTS.

Degree granted Ed.D., Date 1970 No. of pages in report 220

Granted by University of Missouri Columbia, Missouri
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

PURPOSE: To ascertain the problems, practices and perceptions of Missouri counselors concerning the five vocational guidance functions specified in the Vocational Education Act of 1963 and its 1968 Amendments, namely: (1) the provision of occupational information enabling students to make a realistic vocational choice commensurate with labor market needs and available training opportunities; (2) the identification, encouragement and enrollment of students who could profit from vocational training; (3) assistance of students in the completion of vocational training; (4) the job placement of both vocational graduates and terminating students according to ability and training; and (5) evaluative follow-up to ascertain job success and enable the upgrading of youth services in both vocational guidance and vocational education programs.

METHOD OF RESEARCH: Local superintendents of schools were contacted to obtain the names of all counseling and guidance personnel. A normative survey was then conducted involving all the certificated, experienced, public secondary school counselors in Missouri who were employed in the tax-supported schools operating under local direction. The survey instrument was an Information Form prepared by the writer. Appropriate follow-up measures were employed to insure maximum returns. The returns were coded and computer-processed to obtain the statistical data. Other supportive data were obtained from records, rosters, annual reports and personal interviews at the Missouri State Department of Education.

The PROBLEMS section of the Information Form contained five open-ended series of statements. Each statement was followed by a dual four-point scale indicating problem frequency and problem magnitude. The PRACTICES section utilized five open-ended series of statements with a single four-point scale to ascertain the frequency of usage. The PERCEPTIONS section utilized a modified Likert-type five-point scale to ascertain reactions to a series of attitude-perception statements.

SUMMARY AND CONCLUSIONS: At the time of the study counselors reported counseling conditions which were far from ideal or satisfactory. Counselors felt that they had insufficient time and inadequate training for effective vocational counseling. Work with students laboring under almost insurmountable peer group pressure was difficult. Counselors were of the opinion that many parents had totally unrealistic aspirations for their children. Pressures from the community—service, educational, and other groups—were great, resulting in the enrollment of many students in college preparatory programs who had neither the motivation nor the ability to achieve success therein.

Public school counselors in Missouri generally do not accept the idea that sound vocational education demands enrollees who have chosen an occupation or declared an occupational goal prior to enrollment.

The practice of involving parents in the vocational career planning of students was rarely used. Very few counselors reported utilizing advisory committees to correlate vocational programs (including guidance) with labor market needs as required by law. In fact, public school counselors rejected the concept that initial job placement was a proper function of the school. Many reported a lack of adequate training, and also of administrative support, for this activity.

Legislatively dictated criteria for the evaluation of vocational education (including guidance) are: the per cent of trainees, graduates and dropouts who gain employment in the occupations for which they are trained, or a related one; the degree to which they are vocationally successful; and the personal satisfactions of the recipients with the training received. To obtain this information, follow-up studies are imperative. Counselors reported dissatisfaction due to the limitations of administrative support and financial considerations concerning vocational guidance and education.

Counselors indicated that school boards and school administrators were unrealistic concerning the relationship of vocational guidance to vocational education and were lacking in basic understanding of the legal requirements for effective programs in vocational education.

Order No. 71-3395, 220 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Woodruff, James, Neil
(Last name) (First name) (Middle name)

Exact Title AN ECONOMIC ANALYSIS OF LETTERPRESS AND OFFSET PRINTING TECHNIQUES IN DAILY NEWSPAPERS IN THE MID-SOUTH

Degree granted Ph.D., Date 1971 No. of pages in report 281

Granted by The University of Mississippi Halliesburg, Mississippi
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

A descriptive and analytical comparison of printing techniques is made between ten selected daily newspapers in a five-state area called the Mid-South, which includes the following states: Arkansas, Alabama, Tennessee, Mississippi, and Louisiana. An attempt is made to determine whether daily newspapers produced by offset processes or daily newspapers produced by letterpress processes result in lower production costs. Five of the newspapers are produced by offset and five are produced by letterpress. Data is compared for a five-year period, 1965 through 1969.

The national trend in the conversion of daily newspapers from letterpress to offset production during the time period studied was believed to be an opportune time to undertake the analysis. Each newspaper's total revenue, total costs, and profits are analyzed to determine if newspapers which switched to offset production proved to be more profitable after conversion. A further attempt is made to analyze from a qualitative standpoint the reasons for a change in printing process or the reasons for not changing printing process.

Percentage changes between each of the years and the total percentage change for the time period are computed on selected variable cost factors as well as on advertising and circulation revenue.

In an effort to appraise statistically selected variables among the data, linear correlations are performed to show relationships of letterpress and offset production variables separately, as well as correlations of selected variables for all of the newspapers together. Chi Square tests are calculated for what was anticipated to be one of the most significant factors in the production of newspapers by offset. The hypothesis tested is that salaries paid in the back shop (production) and the number of males in the back shop work force are independent. It is shown that the number of females employed in production increased significantly after a newspaper converted from letterpress to offset production.

While there are so many variables present in attempting to compare one newspaper against another newspaper in a different city, it is believed that the general patterns of comparison between letterpress and offset production factors are significant in this study.

Order No. 71-25,703, 281 pages.

*Place summary on this page only.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION*
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wynn (Last name), Philip (First name), D. (Middle name)

Exact Title "THE CONSTRUCTION AND VALIDATION OF A GRAPHIC ARTS JUDGMENT TEST."

Degree granted Ed.D., Date 1970 No. of pages in report 136

Granted by The Pennsylvania State University (Name of institution) University Park, Pennsylvania (City, State)

Where Available: Microfilm (X) Microfish ( ) E.R.I.C. ( )

Problem. The problem with which this study was concerned was the construction and validation of a printed paper and pencil test which could be used to measure secondary school students' ability to recognize and identify the application of selected principles of monochromatic graphic arts design.

It was intended that this test, when administered prior to formal instruction, could be used to predict student success in creating typographical layouts, and, when administered following formal instruction, could provide an objective measure of achievement in creating typographical layouts employing the principles of such design.

Procedure. The author created 98 typographical designs composed of geometric forms and display type. Each design was then altered in some way to produce a poorer counterpart through the intentional violation of one or more of five accepted design principles. Each design and its altered counterpart composed a test item; the testee would then select the better of the pair. A jury of eight typographic experts selected the variation which displayed the better use of typographic design. In order to establish content validity, at least six jurors had to agree on the better variation. There were 34 items on which the jury could not agree so these items were discarded. The remaining 64 items were administered as a pilot test to 74 advanced graphic arts students in five high schools. Obtained reliability coefficients (.644) were high enough to encourage continuation of the study. Fourteen nondiscriminatory items were identified and discarded.

The remaining 50 items were divided into parallel test forms and administered to 200 beginning graphic arts students in six secondary schools. *Form A* was administered as a pretest at the beginning of the course, and *Form B* was administered as a post-test at the end of the course. To establish a coefficient of stability, each form was readministered after one week.

An order effects group of 55 students took *Form B* as the pre-test and *Form A* as the post-test. Statistical comparison showed that test scores were not affected by the order of test form administration.

The data from the main and order effects groups were combined. Statistics showed that test reliabilities (.430) were not sufficiently above chance levels to warrant unambiguous conclusions about test validity. A stratified analysis of variance based on the five design principles revealed no distinct strata effects.

Test scores were correlated with three criterion measures: general mental ability, course grade, and a design ability rating by the teacher. Scores did not correlate significantly with general mental ability indicating that scores were not based entirely on those traits measured by a test of general mental ability. Significant correlations were found between scores and both grade in the course and design ability rating. The latter correlation was high enough to provide some encouragement for the predictive usefulness of the instrument, provided that a means of reducing the error variance component can be found.

Conclusion. In view of the marginal coefficients of reliability, it must be concluded that interpretations of validity data should be viewed with special caution. The instrument did not, under the conditions described, perform reliably enough to measure secondary school students' ability to recognize and identify the application of selected principles of monochromatic graphic arts design without considerable unsystematic variability. Results indicated that test items were too sophisticated for beginning students, but provided more reliable discriminations among students with prior experience.

Order No. 71-6376, 136 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Armstrong (Last name) Kenneth (First name), Eugene (Middle name)

Exact Title A COMPARATIVE VALIDITY STUDY OF THE GENERAL APTITUDE TEST BATTERY, DIFFERENTIAL APTITUDE TESTS, AND THE IOWA TEST OF EDUCATIONAL DEVELPMENT IN IDAHO AREA VOCATIONAL SCHOOLS.

Degree granted Ed.D., Date 1971 No. of pages in report 115

Granted by University of Idaho (Name of institution) Moscow, Idaho (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

Problem

The purpose of this study was to provide validation information on the use of the General Aptitude Test Battery, the Differential Aptitude Tests, and the Iowa Tests of Educational Development in Idaho Area Vocational Schools. The General Aptitude Test Battery has been used extensively as a selection and placement instrument for the Idaho Area Vocational Schools, without adequate validation of the predictive efficiency of this test. The Differential Aptitude Tests and the Iowa Tests of Educational Development are administered in most Idaho secondary schools with little or no use made of the scores from these batteries for predictive use in the vocational schools. This study of validity has sought to determine and compare the predictive power of each test battery.

The predictive power of each test was determined by computing the zero-order correlation coefficients between vocational students' scores on each test battery and their cumulative grade point average.

Methods and Procedures

The sample for this study was comprised of students who had completed a program of vocational training during the school years 1966-67 and 1967-68. Data for the study were obtained from vocational school records and included cumulative grade point average and test scores from the General Aptitude Test Battery. Test scores for the Differential Aptitude Tests and the Iowa Tests of Educational Development were obtained from high school records.

Since many vocational programs can be grouped or classified according to course content and skills required, it was deemed advisable to group the programs offered by Idaho Area Vocational Schools in three groups according to levels of difficulty in program requirements.

Vocational programs requiring a maximum of cognitive skills and a minimum of manipulative skills were grouped together and entitled Level I group. Vocational programs requiring a moderate degree of cognitive skills and manipulative skills were grouped and entitled Level II group. Vocational programs requiring a minimum of cognitive skills and a maximum of manipulative skills were grouped and entitled Level III group. In addition, a sub-group of mechanics programs was formed from the Level II group, entitled Mechanics Cluster, for purposes of comparing correlation coefficients against the total Level II group. One vocational program, Secretarial Occupations, was treated separately because only female students were enrolled in this program.

Processed data included Pearson Product-Moment correlation coefficients which were used as the basis for evaluating the predictive usefulness of each test battery. Tests of statistical significance established the .05 and .01 levels of significance for the obtained coefficients. Two multiple correlation analyses were computed to determine if predictive efficiency could be increased by combining certain sub-tests from the three test batteries. The standard error of the difference between two correlations was computed between statistically significant coefficients, for each group, to determine if observed differences were significant or real differences. An obtained coefficient of .40 was set by this researcher as a minimum degree of relationship between a subtest and the criterion for predictive usefulness.

Results of the Study

Multiple correlation analyses did not show a significant difference between beginning coefficient and the obtained coefficient from step five of the multiple correlation solution. For Level I group of vocational programs, one obtained coefficient showed predictive efficiency. This was Numerical Aptitude from the General Aptitude Test Battery and having a coefficient of .43. There were no coefficients showing predictive efficiency for the Level II group or the Level III group. The sub-group, Mechanics Cluster, had four obtained coefficients of sufficient size to be useful predictors. These were for sub-test Language Usage: Grammar from the Differential Aptitude Tests Battery, with a coefficient of .41; Correctness of Expression, Reading Literature, and Composite scores from the Iowa Tests of Educational Development, with coefficients of .42, .47, and .42 respectively. Three subtests showed predictive efficiency for Secretarial Occupations program. Intelligence and Numerical Aptitude from the General Aptitude Test Battery with obtained coefficients of .40, and .43 respectively; and Correctness of Expression from the Iowa Tests of Educational Development with a coefficient of .43.

Summary and Conclusions

Findings indicated several correlation coefficients showing relationships between students' scores on the three test batteries and their grade point averages. Only two sub-tests from the General Aptitude Test Battery, one from the Differential Aptitude Tests, and three from the Iowa Tests of Educational Development showed obtained coefficients at or above the .40 standard and were considered useful as predictors. On the basis of these data, the validity of the three test batteries for purposes other than counseling vocational students would be questionable. Order No. 72-2068, 115 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Ballo (Last name), Gary (First name), Richard (Middle name)

Exact Title A COMPARATIVE FOLLOW-UP STUDY OF GRADUATES AND NONGRADUATES FROM THE VOCATIONAL DIVISION OF THE LEWIS-CLARK NORMAL SCHOOL.

Degree granted Ed.D., Date 1971 No. of pages in report 133

Granted by University of Idaho (Name of institution) Moscow, Idaho (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The purpose of this study was to determine whether there were distinguishing characteristics between graduates and nongraduates from the Vocational Division of Lewis-Clark Normal School. The subjects were 108 graduates and 66 nongraduates who participated in the following six vocational programs: Auto Mechanics, Industrial Mechanics, Police Officer Training, Drafting and Design, Mid-Management, and Radio Communications Technology. Subjects were enrolled in the Vocational Division during the period of September 1966 through January 1970.

METHODOLOGY

Graduates and nongraduates were compared on data taken from the school records and from their responses to a questionnaire. Data compared were broken down into the following three areas; (1) preadmission information, (2) student performance and evaluation of vocational training, and (3) post school occupational adjustment. Methods of analyses to include the t test; Mann-Whitney U Test; chi square technique; and reporting of frequencies, ranges, percentages, ranks, means, and standard deviations were used in comparison of graduates and nongraduates.

RESULTS

There were no significant differences between graduates and nongraduates in relation to the characteristics listed below.

1. Age at time of entering a vocational program; the t of .03 was not significant at the .05 level of confidence.
2. Level of education prior to entering vocational training; the t of .25 was not significant at the .05 level of confidence.
3. High school completion; the x^2_c of .09 was not significant at the .05 level of confidence.
4. Marital status; the x^2_c of .001 was not significant at the .05 level of confidence.
5. Physical or health disability; the x^2_c of .17 was not significant at the .05 level of confidence.
6. General Aptitude Test Battery scores; the following U test Zs were not significant at the .05 level of confidence: G-score 1.82, V-score .49, N-score .84, S-score 1.65, P-score .18, Q-score .17, K-score .30, F-score .53, and M-score 1.56.
7. Evaluation of the quality of practical and theory instruction; the x^2_cs of .02 and 3.51 were not significant at the .05 level of confidence.
8. Evaluation of the amount and quality of counseling provided; the x^2s of 1.96 and .94 were not significant at the .05 level of confidence.
9. Evaluation of the interest shown by teachers in students' problems; the x^2 of .70 was not significant at the .05 level of confidence.
10. Recommendation of training program to others; the x^2_c of .06 was not significant at the .05 level of confidence.
11. Job placement provided by Lewis-Clark Normal School; the x^2 of 4.02 was not significant at the .05 level of confidence.
12. Length of time to obtain employment; the x^2_c of .80 was not significant at the .05 level of confidence.
13. Distance residing from Lewis-Clark Normal School at the time of the study; the x^2_c of 1.58 was not significant at the .05 level of confidence.
14. Job satisfaction; the x^2_c of .24 was not significant at the .05 level of confidence.
15. Earnings; the Z of 1.03 was not significant at the .05 level of confidence.

There was a significant difference between graduates and nongraduates in relation to the characteristics listed below.

1. First choice of a vocational program was available; the x^2_c of 5.68 was significant at the .05 level of confidence. A higher percentage of graduates stated that the vocational school offered their first choice of a vocational program.
2. Vocational school grade point averages; the x^2 of 22.74 was significant at the .01 level of confidence. Graduates as a group had higher grades than nongraduates.
3. Program stability; the x^2_c of 8.21 was significant at the .01 level of confidence. A higher percentage of graduates directly entered and stayed with a specific vocational training program.
4. First full-time employment in relation to that trained; the x^2_c of 8.03 was significant at the .01 level of confidence. A higher percentage of graduates obtained their first full-time job in the trade or field studied.

CONCLUSION

It was concluded that first choice of a vocational program being available, vocational school grade point average, program stability, and first full-time employment in relation to that trained were characteristics that distinguished between graduates and nongraduates for the group tested in this study.

Order No. 72-2071, 133 pages

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Beck (Last name) Richard (First name), Wentworth (Middle name)

Exact Title CRITERIA FOR THE SELECTION OF STUDENTS FOR TRADE AND INDUSTRIAL EDUCATION PROGRAMS.

Degree granted Ph.D., Date 1971 No. of pages in report 145

Granted by The Ohio State University (Name of institution) Columbus, Ohio (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Ohio's recent efforts toward Vocational and Technical Education have provided a new foundation upon which new and expanded programs can be built. The image of vocational education and the image of the vocational education student has begun to change. With the new emphasis on vocational education, more students are applying for vocational training. As more and more students apply for admission to these programs, and with more and more bond issues for education failing throughout the State, the schools in Ohio face the very real problem of which students to select for the programs.

It was the purpose of this study to develop selection criteria for students seeking admission to Trade and Industrial Education Programs.

The method of research employed in this study was non-experimental and developmental. The procedures used in the establishment of the initial set of selection criteria were a synthesis of the pertinent literature and research plus the review of actual procedures used in the secondary school districts throughout Ohio.

The review of literature and research revealed a lack of articles on the subject of selection criteria. The literature also revealed a great diversity of selection criteria which researchers indicate should be used in vocational programs. A survey was conducted in all school districts and joint vocational school districts in Ohio, that offered at least three Trade and Industrial Education Programs, to see how students were being selected. The results of this survey revealed that no standard selection criteria were being used. The selection criteria varied from school district to school district with the only constant factor being the involvement of the school counselor in the selecting process.

Proposed selection criteria were then developed, based on a compilation of the elements most commonly used in school districts and joint vocational school districts in their selection procedures.

The proposed selection criteria were presented to a group of thirteen professional vocational educators for a qualitative evaluation. The evaluators were professional persons who by their present position and past experience were uniquely qualified to evaluate the proposed selection criteria. Their professional background, judgment, and interest in student selection made them vital to this study. These evaluators represented the public schools, the universities, the State Department of Education, and outside agencies.

The evaluators made their judgments on the selection criteria's strengths, weaknesses, and validity for predicting student success in a program. The results of the qualitative evaluation were summarized and the final selection criteria developed.

The selection criteria, as developed in this study, included the age of the student, intelligence level of the student and number of academic credits that the student had earned in school. The evaluators agreed that the attendance record and the major and minor subjects a student had taken in grades nine and ten should also be part of the selection criteria. The only standardized instrument that the evaluators agreed to use in the selection process was the General Aptitude Test Battery. A personal interview between the student and the vocational instructor was deemed the most important part of the selection criteria.

In order to facilitate greater understanding of the selection criteria, an instrument to collect the data was developed. The instrument was designed for use in any school district or joint vocational school district in Ohio. The selection criteria, as developed in this dissertation and evaluated by the panel of experts, can serve as the basis for selecting students for Trade and Industrial Education Programs in all school districts in Ohio.

Order No. 71-27,424, 145 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Bettis (Last name), Lloyd (First name), Eugene (Middle name)

Exact Title RELATIONSHIPS OF CLASSROOM CLIMATE, STUDENT AND SUPERVISOR PERCEPTIONS OF INSTRUCTOR EFFECTIVENESS, AND STUDENT ACHIEVEMENT IN A DEPARTMENT OF DEFENSE TECHNICAL SCHOOL.

Degree granted Ed.D., Date 1971 No. of pages in report 201

Granted by University of Maryland (Name of institution) College Park, Maryland (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Statement of Problem

What relationships exist among instructor influence on classroom climate as indicated by Flanders' Categories for Interaction Analysis, student and supervisor perceptions of instructor effectiveness, and student achievement in courses conducted at a Department of Defense Technical School?

Hypotheses

The investigation was designed to test the following four hypotheses:

1. There is no difference in student perception of the effectiveness of instructors who are less direct and student perception of the effectiveness of instructors who are more direct in their classroom influence.
2. There is no difference in supervisor perception of the effectiveness of instructors who are less direct and supervisor perception of the effectiveness of instructors who are more direct in their classroom influence.
3. There is no difference in the years of teaching experience for instructors who are less direct and years of teaching experience for instructors who are more direct in their classroom influence.
4. There is no difference in student achievement for instructors who are less direct and student achievement for instructors who are more direct in their classroom influence.

Procedures

The study was conducted in two stages. In the first stage, classroom instruction in ten randomly-selected mathematics and technical courses was observed and recorded using Flanders' Categories for Interaction Analysis. This provided a basis for describing instruction within the school and allowed comparison of instruction in this school with instruction at other educational levels. In the second stage of the study, instruction was observed in ten presentations of a forty-hour block of instruction in an introductory-level technical course. For these ten presentations, achievement data were collected.

Student perception of instructor effectiveness was assessed with a locally-developed *Student Opinion Survey*. Supervisor perception of instructor effectiveness was measured using a modified version of Cosgrove's *Descriptive Ranking Form for Teachers*. Locally-prepared pre-and post-tests were used to measure student achievement in the introductory-level technical course. Flanders' Interaction Analysis Technique was used for recording and analyzing instructor-student verbal interaction. The hypotheses were tested by trend analysis and correlation techniques. Finally, a search was made for other aspects of instructor-student interaction that might be related to instructor effectiveness.

Summary of Findings

Instructors in this school lecture more than high school physics or eighth grade mathematics teachers. They also ask fewer questions and make much less use of student ideas than instructors at the other grade levels. However, they praise students more and criticize them less than either high school physics or eighth grade mathematics teachers.

There was no statistically significant difference in supervisor perception of instructor effectiveness for instructors who were less direct and instructors who were more direct in their classroom influence. However, for a group of instructors, all of whom taught the same course, students tended to rate the most direct and least direct instructors as less effective than instructors in the middle range of influence. Instructors with more teaching experience were more indirect in their classroom influence than instructors with less teaching experience.

Instructors who were less direct had significantly greater student achievement in an introductory-level technical course than did instructors who were more direct in their classroom influence.

Three measures of instructor flexibility were investigated but no single measure appeared as a variable highly related to instructor effectiveness in general. A search for relationships among various interaction matrix measures and instructor effectiveness scores revealed that the per cent of student talk was significantly related to student achievement.

Finally, supervisor ratings of instructor effectiveness were significantly related to instructor teaching experience in an introductory-level technical course.

Order No. 72-601, 201 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Bleckman (Last name), Judith (First name), Claire (Middle name)

Exact Title VOCATIONAL EDUCATION IN A DEVELOPING NATION: ISRAEL

Degree granted Ed.D., Date 1971 No. of pages in report 414

Granted by University of California (Name of institution) Los Angeles, California (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Israel is a developing nation, with strategic geographical position, which must industrialize in order to gain the economic position necessary to survival.

Vocational education programs are under the jurisdiction of the Ministries of Education, Labour, Defense, Foreign Affairs, Health, and Social Welfare. Public service organizations assist vocational education programs financially and with implementation.

Vocational education begins in school craft classes at the primary level; exploration continues in exploratory programs in the intermediate school, accompanied by in depth guidance and counseling programs to aid choices of future education and training. Secondary vocational education is in secondary schools, apprenticeship training, and programs designed for out of school youth. Post secondary programs require possession of matriculation certificates either internal or external. Adult programs, for persons over eighteen possessing primary certificates, usually provides basic education in addition to practical work and related theory.

Persons directly involved with vocational education programs are government administrators, vocational education administrators, vocational program teachers, vocational program participants, industrial supervisors, and members of the work force who are former vocational program participants. Israeli opinion regarding vocational education in Israel was revealed through an opinion study with a sample population from the above groups. The sample stated that vocational education should be for anyone in Israel without regard for family origin, origin of birth, age, intellectual ability, or socio-economic status. There should be centralized control of vocational education supplemented by aid within programs by public service organizations.

Basic education should be part of all programs; however, a more thorough basic education is necessary at the primary and intermediate levels, and an increase in science, mathematics, and English instruction is necessary at all levels to aid vocational preparation and performance. Formal exploration classes should begin in the primary school and choice of a specific area of study should not take place until the upper secondary years. Programs at the secondary level should provide a broad view of an area prior to specific training. Quality teaching is essential for any program to be effective. Teaching methods and procedures must be up to date, and teachers should have periodic refresher courses to keep abreast of new developments in teaching and in their specific areas of concentration.

At this time there are not sufficient places to improve highly trained skills below the baccalaureate, and there is little teacher training in adult education, special education, or teaching the blind. The number of general electronics courses should be increased and new programs should be established in higher level photography, philosophy of technical areas, and language translation. All education is based too heavily on grades and examinations; there should be more discussion and learning for understanding.

In general, government administrators are more satisfied with programs than other groups; and teacher, participants, and industrial supervisors are most in favor of sweeping changes in vocational education programs. The individualism of Israelis is illustrated by the fact that in very few areas of questioning is there any approach to homogeneous opinion either within or between groups.

Order No. 72-1466, 414 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Bro (Last name) Ronald (First name), Dean (Middle name)

Exact Title A COMPARISON OF CONVENTIONAL AND TRANSITIONAL INDUSTRIAL TEACHER EDUCATION DEPARTMENTS WITH RESPECT TO SELECTED FACTORS DEEMED TO AFFECT INNOVATIVENESS.

Degree granted Ed.D., Date 1971 No. of pages in report 215

Granted by University of Nebraska (Name of institution) Lincoln, Nebraska (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The Problem

The purpose of the study was to compare industrial teacher education departments which, during the period from 1960 through 1970, had implemented major curricular changes in preparing teachers for innovative programs on the secondary level, with departments which had experienced relatively little change in this direction. The comparison was based on selected factors deemed to affect innovativeness.

The Procedure

Two forms of a questionnaire were developed, tested, and mailed to industrial teacher educators in seventy-five colleges and universities in the upper midwestern area of the United States. Form I was sent to department chairmen. From their sixty-five usable returns, it was determined that twenty-nine (44.6 percent) of these departments fell in the category of transitional departments as defined in the study. The remaining thirty-six (55.4 percent) departments constituted the conventional category. Form II was sent to faculty in the above sixty-five departments. It was sent only to pedagogical staff members—faculty with rank of assistant professor or above, who were teaching professional courses, supervising student teachers, or who were engaged in curriculum research or development. Of the fifty-eight questionnaires sent to staff members in conventional departments, a return of thirty-eight (65.5 percent) was obtained. Eighty-eight (81.5 percent) of the 108 staff members in transitional departments returned usable questionnaires. The returned data were coded and presented to the Computer Center at the University of Nebraska, where the statistical computations were performed.

Selected Findings

1. No significant difference was found between conventional and transitional departments with respect to: number of undergraduate majors, age of physical plant, frequency of federal or private funding for curriculum development. Neither were there significant differences between the mean statistics of chairmen and staff members regarding chronological age, tenure in present position, highest earned degree, teaching experience on college and secondary levels, industrial experience, nor memberships in professional associations.

2. The mean statistics of transitional departments were found to be significantly greater than those of conventional departments regarding: number of graduate majors, expenditures for equipment and curriculum development, number of national meetings attended yearly and number of professional journals subscribed to by department chairmen, and amount of institutional travel allowance.

3. Staff members in transitional departments were more supportive than those in conventional departments of the stated beliefs that "conventional" programs on the secondary level are in need of change; that more integration of science, mathematics, and English is needed; that content should be classified under broader occupational areas of industry; and that less emphasis should be placed on manipulative skills in favor of more diversified learning experiences and problem solving activities.

4. The participants ranked "insufficient time," "inadequate equipment," "lack of assistance," and "inadequate physical plant" as the main barriers to curricular change in their departments.

5. The participants perceived the instructional staff in the department as having the most influence on changing educational practices in their departments. The department chairman was ranked second in the order of influence. Of the factors outside the institution, professional associations, professional journals, and educational research were considered to have the most influence on producing change.

Conclusions

The design and development of innovative curricular programs in industrial education for secondary schools has generally taken place in the larger departments. The larger faculty, larger graduate enrollments, and frequent expenditures for curriculum development in these departments places them in a more favorable position to experiment with innovations than the smaller departments.

Implementation of programs to prepare teachers for innovative curricula on the secondary level has been hindered in many departments by lack of funds and the lack of conviction that innovative programs are more effective than "conventional" programs on the secondary level.

Order No. 71-28,600, 215 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author De Old, Alan, Ross
(Last name) (First name) (Middle name)

Exact Title AN EXPERIMENTAL STUDY INVOLVING A COMPARISON OF TWO METHODS OF TEACHING INDUSTRIAL CONCEPTS.

Degree granted Ed.D., Date 1971 No. of pages in report 152

Granted by University of Maryland College Park, Maryland
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Statement of the Problem. The problem of this study was to determine the effectiveness of a directed field study method of teaching as compared with a slide tape presentation. Of concern was information related to the field of industrial arts education in both the cognitive and affective domains.

Purpose of the Study. The purpose of this study was to generate research evidence regarding the differences between two methods of presentation concerned with basic industrial concepts.

Statistical Design. The multi-variate analysis of variance program (MANOVA) was selected as the method to analyze the data to test the hypotheses advanced in this study related to the criterion test. The experimental design of three treatment groups and two ability levels (3x2 Design) was used to analyze the differences between the experimental and control groups for the post test. The experimental design of two treatment groups and two ability levels (2x2 Design) was used to analyze the differences between the experimental groups for the retention test. The .05 level of significance was used in testing the data obtained immediately after instruction and at two weeks following instruction. Hartley's F max test was used to test for homogeneity of variance.

A simpler measure was used to test the hypotheses related to change in attitude. The Purdue Master Attitude Scales utilized the median value of the statements endorsed as the attitude score. This score was converted into a scale value and the values were totaled. These values were then compared to note attitude change related to instructional methodology and ability level.

Statement of Hypotheses. This study was designed to provide evidence regarding the following hypotheses:

1. There was no difference in learning of students in Treatments A and B as measured by an objective type criterion test administered immediately and at two weeks following instruction.

2. There was no difference in learning between the ability levels of students in Treatments A and B as measured by an objective type criterion test administered immediately and at two weeks following instruction.

3. There was no difference in attitude as measured by the attitude rating scale administered immediately after instruction between groups of Treatment A and Treatment B.

4. There was no difference in attitude as measured by the attitude rating scale administered immediately after instruction between the levels of Treatment A and Treatment B groups.

Definition of Terms.

1. *Treatment A*—A directed field study excursion to industry to view the particular aspect of industry under consideration. This group took the objective type criterion test and responded to the attitude rating scale.

2. *Treatment B*—A slide tape presentation with information concerning the particular aspect of industry under consideration. This group took the objective type criterion test and responded to the attitude rating scale.

3. *Treatment C*—The control group which received no instruction but took the objective type criterion test.

Findings. The findings of this study were that:

When the treatments were examined alone, the analysis erasing the effects of ability, the directed field study group was significantly superior to the slide tape group on both the post and retention test.

When the ability levels of the students were examined alone, the analysis erasing the effects of the treatments, the learning of the high ability level students was significantly superior to the low ability level students on both the post test and retention test.

Examination of the data related to the attitude scales indicated that the students participating in the directed field study, as a group, developed a more positive attitude toward the work situation in the assembly plant than did those students who viewed the slide tape presentation.

When the treatment groups were examined by ability levels the results indicated that the lower ability level students from the directed field study and slide tape groups developed a more positive attitude change toward the work situation in the assembly plant than did the high ability level students.

Order No. 72-611, 152 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author	Doellinger	Keith,	Eugene
	(Last name)	(First name)	(Middle name)

Exact Title THE PERCEPTION OF MOTION IN STATIC, TWO-DIMENSIONAL INSTRUCTIONAL DRAWINGS AS DEPICTED BY FOUR MOTION COVENTIONS.

Degree granted Ph.D., Date 1971 No. of pages in report 217

Granted by The University of Iowa (Name of institution) Ames, Iowa (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The necessity to communicate motion frequently occurs in instructional situations. Because of such factors as safety, time, costs, and convenience, an instructor often cannot utilize real or contrived motion events. Motion media such as motion pictures and television are frequently not available when needed. If available, the content may not be suited for specific instructional objectives.

Because of such limiting conditions, drawings are often employed to communicate motion. However, drawings are static representations. Since they are static, motion is not an inherent characteristic of drawings as it is of motion media. To overcome this limitation illustrators employ a number of devices (motion conventions) to communicate motion in drawings.

Illustrators typically employ motion conventions on an intuitive basis. They assume the motion convention will be interpreted by the viewer as depicting motion. Little effort has been directed toward the investigation of how viewers perceive these attempts to depict motion.

The basic purpose of this study was to answer the question—How do viewers perceive four motion conventions (swish lines, edge lines, dashed trails, and arrows) as depictors of motion?

The study, designed to be broad and exploratory, involved 387 subjects in second, fifth, tenth and university grades. The subjects responded nonverbally to stimulus material consisting of 57 illustrations. This resulted in a total of 31,347 separate measures of viewer responses to the following motion qualities: motion per se, direction, displacement, path configuration, speed, smoothness, and attitude change.

Five hypotheses were advanced. H_1: Viewers will perceive the motion conventions as depicting motion. H_2: Viewers will vary in their perceptions of the motion conventions. H_3: Each motion convention will exhibit specific motion depiction characteristics. H_4: Viewer populations based on grade-level, sex, and scholastic achievement (as measured by standardized tests) will exhibit distinct perceptual norms. H_5: Sufficient differences exist between viewer perceptual norms and illustrators' intents as to cast doubt on the value of some current practices of employing these motion conventions. Analysis of the data lead to the acceptance of all hypotheses except H_4.

The evidence suggests that the four motion conventions will be perceived as depicting motion by a wide range of viewers.

Swish lines and dashed trails were generally superior to edge lines and arrows as depictors of the motion qualities considered in the study. Viewers tended to perceive all four motion conventions as depicting straight path configuration and displacement to the edge of the paper. Perceptual differences associated with sex were slight. The perceptions of students in the upper grades and those with the higher scholastic achievement scores tended to more nearly match the intents of professional illustrators than did the perceptions of students in the lower grades and those with the lower scholastic achievement scores.

Order No. 71-30,426, 217 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Elliott, Burton, Lamar
(Last name) (First name) (Middle name)

Exact Title COMPARATIVE ANALYSIS OF THE RESULTS OF THE HIGH SCHOOL CHARACTERISTICS INDEX ADMINISTERED AT TWO VOCATIONAL, AND TWO GENERAL HIGH SCHOOL.

[Pages 95-101, "High School Characteristics Index," not microfilmed at request of author. Available for consultation at University of Arkansas Library]

Degree granted Ed.D., Date 1971 No. of pages in report 109

Granted by University of arkansas Fayetteville, Arkansas
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Statement of the Problem

This study represents an attempt to measure the responses of high school students on an instrument which attempts to explore their school environment. The instrument used was Stern's *High School Characteristics Index*. The perceptions are defined by this instrument as perceptions of the "press" of the environment, as described by Murray. The basic purpose of this study is to determine if the perceptions of the students in the four selected high schools are significantly different from one another. Comparisons were also made between the mean of the four schools studied and the norms set up by Stern.

Procedure

Samples were drawn from four Arkansas High Schools during the fall school term of 1970. The schools were located in three cities: Siloam Springs, population 6,000; Fayetteville, population 31,000; and Little Rock, population 130,000.

Using the table of random numbers a stratified-random sample of students was drawn from each tenth, eleventh, and twelfth grade class of each school. The total number of students in the sample was 394 out of a total school population of 2,530. Each of these 394 students were given the *High School Characteristics Index* questionnaire.

The completed answer sheets were graded and the raw scores for each of the thirty variables for each respondent was key-punched into data cards, one card for each respondent. The University of Arkansas' Computing System, acting under the control of the "Multiple t" statistical program, was used in calculating means, standard deviations, and "t" ratios on each of the thirty variables. A function sub-program was utilized to calculate probability under the null hypotheses of no difference between the means of the thirty variables tested.

Conclusions

1. Students of the general high schools examined in this study were willing to work harder to attain educational goals for themselves than were the students from the vocational schools.
2. Vocational students were much less willing to accept criticism, advice, or humiliation than were the general high school students.
3. The general high school students were much more gregarious, group-centered, and had more friends than did the students from the vocational schools.
4. Students in the vocational schools tended to be more aggressive and indifferent to the feelings of others than did the general high school students. Fighting, arguing, and defacing school property was much more prevalent among the vocational students.
5. General high school students tended to be more domineering toward their fellow students than did the vocational students. Student elections were felt to be more important and student leaders were felt to have more power in the general high schools.
6. Idealistic social action, political power, and social reform are much more of a part of the general high school student's life than they are of the vocational student's life.
7. The general high school students tended to exhibit themselves more than do the vocational students. Self-display and attention-seeking were not uncommon among the general high school students.
8. Intellectualism is much more prevalent among general high school students.
9. Having fun at school is more important for the general high school student than it is for the vocational student.
10. More interest in and preoccupation with the opposite sex was found on the general high school campus.
11. Dependence on others for love, assistance, and protection was much higher for the vocational students.
12. The *High School Characteristics Index* provides information that is of use to the administration of an institution for self-evaluation and for suggesting steps for self-improvement.

Order No. 71-27,661, 109 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Even , Mary , Jane
(Last name) (First name) (Middle name)

Exact Title AFFECTS OF "RATIONAL" VERSUS "EMOTIONAL" PRINTED PUBLIC RELATIONS PROGRAM ON AFFECTIVE AND COGNITIVE DISPOSITIONS OF EMPLOYEES TOWARD A PROBLEM IN VOCATIONAL EDUCATION.

Degree granted Ph.D. , Date 1971 No. of pages in report 349

Granted by The University of Wisconsin Madison, Wisconsin
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Statement of the Problem

The primary purpose of this study was to examine selected effects of two communications written on the same mild topic. The effects to be studied were affective dispositions (evaluation, potency, activity) and cognitive dispositions (knowledge gain). The two written communications (public relations programs) were operationally defined as the "Rational" approach and the "Emotional" approach.

The topic of the public relations programs was selected for its mild, nonfear-arousing nature and a need of the sponsoring organization, the Wisconsin Board of Vocational, Technical and Adult Education, to communicate the information to one of its publics. The topic was "How can the vocational schools in Wisconsin achieve the status and prestige they need to carry on their role effectively in the technological society?"

The public of the vocational schools, chosen as subjects for this study, was secretarial employees.

The following hypotheses were tested:

Hypothesis One: There is no difference in affective dispositions of the secretaries toward vocational education as a result of the "Rational" or the "Emotional" presentation of the message, either in evaluation, potency or activity.

Hypothesis Two: There is no difference in cognitive dispositions of the secretaries in knowledge gained about vocational education as a result of the "Rational" or the "Emotional" presentation of the message.

Procedures

The design developed for this study was the expanded random, controlled, pretest, posttest design which provides for three treatment groups. N = 30.

In order to operationalize the problem, the researcher needed to: define the key terms; develop the content and means for content analysis; develop the instrumentation; provide the treatments.

The experimental procedures involved pretesting the secretaries at their place of work. The treatment involved using two types of written communications. Each type was prepared in five packets and mailed to the secretaries once a week for five weeks. The posttest was also mailed. Group 1 received the "Emotional" content, Group 2, the "Rational" content, and Group 3 was the control group.

A Semantic Differential instrument and a cognitive instrument were used to measure the responses selected.

Results

There were no significant differences found in either the affective or cognitive dispositions measured as a result of either the "Rational" or the "Emotional" approach to the written communications using a mild topic when that topic is being communicated to peripheral level employees (secretaries) of an adult educational institution. It was found that the secretaries' attitudes toward the vocational schools were unfavorable to neutral in all three groups.

Descriptive information is presented: on the subjects themselves; on the subjects' reactions to the treatment; on the subjects' attitudes toward vocational education; and on the Semantic Differential instrument.

Conclusions

This study has contributed to research on affective change and specifically to research dealing with the message as a stimulus for change. Operational definitions of "Rational" and "Emotional" terms were developed. Correlates of affective change were delineated. A highly significant relationship between the affective responses was found. The content was written on a mild topic. A specific employee public in educational institutions has been identified to be of real concern as institutions attempt to gain favorable public opinion. Public relations programs were developed, based on affective objectives, which could be used by educational institutions as a model for planning public relations activities.

Many implications may be drawn which contribute to the study of: attitudes; messages and methods to change attitudes; use of a mild content in education; public relations in education; employee attitudes toward their employing institutions; and more.

Order No. 71-24,456, 349 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Fegan , Harold , James
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE FUNCTIONS OF THE LOCAL DIRECTOR OF OCCUPATIONAL EDUCATION IN NORTH CAROLINA.

Degree granted Ed.D. , Date 1971 No. of pages in report 163

Granted by North Carolina State University Raleigh, North Carolina
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The purpose of this study was to analyze the duties and responsibilities of the local director of occupational education in North Carolina. The specific purposes of this descriptive method of research was to:

1. Assemble a list of major functions applicable to the position of local director.
2. Determine the extent of importance attached to the selected functions.
3. Determine the extent of satisfaction attached to the performance of these functions.
4. Determine the relative agreement or lack of agreement among various subgroups pertaining to these functions.

Functions were assembled by various means including: interviews and the perusal of research studies, textbooks and various State and Federal publications. The list of functions was finalized and then validated by a jury of experts. The data presented, represented the responses of the total population of 35 local directors of occupational education in North Carolina who ranked the functions for importance and extent of satisfaction. This ranking was accomplished by the use of the Q-Sort methodology. Various statistical methods were used; the first treatment produced means and variances for each function according to the extent of importance and satisfaction. The second treatment made use of the analysis of variance to determine if there were significant differences among the mean scores of various subgroups.

The findings of this study indicate that it is possible to evaluate various duties and responsibilities of a local director and that there would be general agreement as to which practices are significant. A further comparison of the rankings indicated that these functions were ranked in approximately the same order for importance as well as for extent of satisfaction. There were, however, a number of exceptions that were thought to be significant. These exceptions pertained to the functions which were ranked as high in importance but low in satisfaction. The functions so ranked were: establishing, reviewing and revising goals, objectives, policies; proposes budgets and directs expenditure of funds; working cooperatively with guidance personnel; consultant to teachers in regard to methods and techniques; classroom supervision; evaluating and recommending improvements in instruction and conducts or directs periodic surveys. These anomalies were investigated and possible explanations for this phenomena were presented and discussed.

The possible differences in the rankings of the functions, as performed by various subgroups, were also examined. These subgroups were categorized by various educational and experiential backgrounds. The results of the analysis of variance of the mean scores for each of the subgroups, on the high and low importance and satisfaction functions revealed little differences among these subgroups.

Two subgroups revealed significant differences when the high and low importance and satisfaction functions were compared. The first subgroup was "education graduate major" being compared to "other than education graduate major". The second subgroup with 0-4 years teaching experience was compared to other subgroups with more than 4 years of teaching experience. The specific functions selected by these subgroups were listed and examined in detail but few explanations for these differences could be made.

Order No. 71-29,430, 163 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Fueg, Henry, Louis
(Last name) (First name) (Middle name)

Exact Title LIGHTING ANGLE EFFECTS ON PERSONALITY JUDGMENTS OF FACIAL PHOTOGRAPHS.

Degree granted Ed.D., Date 1971 No. of pages in report 98

Granted by Indiana University Bloomington, Indiana
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose

The purpose of this study was to answer the following questions: (1) Can the perceived personality of a model be changed in a predicted manner through the manipulation of controlled lighting conditions?; (2) Does the age of the viewer influence personality judgments made in response to viewing a model under controlled lighting conditions?; and (3) Does the sex of the viewer influence personality judgments made in response to viewing a model under controlled lighting conditions?

Sources of Data

Eleven photographic models were used to determine whether the effects of lighting angles were specific with respect to judgments of a particular model, or whether these effects exhibited some degree of generality. Models were chosen to fit into five general age groups, with both male and female in each group. *S*s were one hundred graduate students enrolled at Indiana University. The *S*s consisted of 70 females and 30 males with an age range from 18 to 51 years old. Stimulus materials were 55 black and white 2 x 2 slides. The eleven models were photographed under each of five lighting conditions.

Procedure

The experiment was administered using standardized oral and visual instructions. Photographs of the models were shown with the *S*s viewing five lighting conditions for a specific model at one time. *S*s were asked to rank each of the photographs from most friendly to least friendly, most frightened to least frightened, most strong-willed to least strong-willed, and most pessimistic to least pessimistic. Ranks were tabulated for each personality trait across each lighting angle for each model. Analyses were made by using the Friedman Two-Way Analysis of Variance, the Kendall Coefficient of Concordance W, the Wilcoxon Matched-Pairs Signed-Ranks Test, and the Fisher's Exact Test.

Findings

Analyses of the data for each personality trait across each lighting angle for each model are summarized in the following table.

HYPOTHESIS AND RESULTS FOR LIGHTING CONDITIONS ON PERCEIVED PERSONALITY TRAITS

Personality Trait	Hypothesis	Significant Results
Friendly	B> D> A, C, E	B, D> C> A, E
Strong-Willed	C> D> A, B, E	A, B, C, D, E
Frightened	A> D> B, C, E	A> B, C, D, E
Pessimistic	E> D> A, B, C	E> C, D, A> B

A=Low Angle Lighting; B=Frontal Lighting; C=High Angle Lighting; D=Medium-Angle, Side lighting; E=Medium-Angle, Side-Rear Lighting

Conclusions

Friendly. It is predictable that an effect of "friendly" can be created with lighting angles. Over all models, if one wishes to create an effect of "friendly," a frontal or medium-angle side lighting should be employed. Conversely, to create the effect of "least friendly," a medium-angle, side-rear, or low angle light should be used. Subject and model variability have some effect on predictability.

Strong-Willed. There is considerable interaction between the lighting angles used in this study and model characteristics resulting in an ambiguity in the *S*s interpretation of this trait. Additional study is needed to relate these two factors.

Frightened. Models under low-angle lighting conditions are more likely to be perceived as "frightened" than under the other conditions studied. However, there is evidence from the data to indicate that intermodel and intersubject variability may influence viewers' judgment of this trait.

Pessimistic. In general, the effect created by medium-angle, side-rear lighting will create an effect of "more pessimistic" than other lighting conditions studied. Conversely, frontal lighting will create the effect of "less pessimistic" than other lighting angles studied.

Lighting Conditions

The following table indicates those lighting conditions which predictably affect viewer judgments of personality traits studied. "Strong-willed" is not included as results were not consistent across models for that personality trait.

LIGHTING CONDITIONS CAPABLE OF PRODUCING CERTAIN PRE-SPECIFIED PERSONALITY CHARACTERISTICS

Lighting Condition	Friendly	Frightened	Pessimistic
Low Angle Lighting (A)	3	1	2
Frontal Lighting (B)	1	3	3
High Angle Lighting (C)	2	3	2
Medium-Angle, Side Lighting (D)	1	3	2
Medium-Angle, Side-Rear Lighting (E)	3	3	1

1= Most; 2= Medium; 3= Least

Recommendations

Based on the results, conclusions and problems encountered during this study, the following recommendations are made:

Research should be conducted to: (a) analyze the characteristics of *S*s influencing judgments of a specific model's personality traits; (b) analyze the characteristics of models that influence judgments of a specific model's personality traits; and (c) analyze interactions between lighting ratios and camera angles, lighting angle and other elements to provide a glossary of photographic style designed around specified effects. The findings of these studies should be valuable to producers and researchers in communication.

Order No. 72-1543, 98 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Goldberg , Joel , ________
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION OF A CURRICULUM CORE BASED UPON CONTENT COMMON TO A CLUSTER OF RELATED ELECTRICAL AND ELECTRONIC OCCUPATIONS.

Degree granted Ph.D. , Date 1971 No. of pages in report 177

Granted by Wayne State University Detroit, Michigan
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The purpose of this study was to develop a curriculum core for a selected cluster of electrical and electronic occupations based on knowledge found to be common to these occupations. The need for the study was based on a problem currently faced by educators of providing people with the skills and knowledge necessary for successful performance in a rapidly changing technological society. Machines have taken over most heavy labor tasks, leaving man free to control, service, or install equipment. Technology and jobs have shifted so rapidly that occupations considered stable only a few years ago have now been eliminated. This shift has forced educators to review occupational preparatory programs in order to identify methods of training which would require a minimum of retraining in the process. One method identified is the use of the cluster concept, where a person is trained to function in a cluster of related occupations. The common elements of the cluster are identified and used as a core, or basis, of the curriculum. This approach would meet the need of training to compensate for occupational shift. The cluster concept approach was identified and utilized as the basis for this study.

Four major steps were undertaken in the identification of an electrical and electronics curriculum core. The first step was the identification of a cluster of related occupations. Using the *Dictionary of Occupational Titles*, all occupations related to electricity and electronics were identified and listed. The list was then delimited by four factors: (1) occupations requiring more than one year, but less than four years of education, (2) occupations commonly found in the Wayne, Oakland, and Macomb counties of Michigan, (3) occupations for which there were no current ongoing apprenticeship programs, and (4) occupations which represented growth in future employment opportunities in the geographical area defined. The second step was the identification of tasks performed by people in each occupation. Using original research and published job analyses, a list of tasks was prepared. The third step used an analysis of instructional materials found in current textbooks, research of others, and curriculum guides to prepare a list of knowledge items pertinent to the performance of the previously identified tasks. The final step was the development of a list of knowledge items found to be common to the majority of the tasks. This list provided the basis for knowledge required for the curriculum core.

The study identified a cluster of five electrical and electronic occupations: Audio-Video Repairman, Electro-Medical Equipment Repairman, Electronics Mechanic, Electrical Instrument Repairman, and Tester, Systems (electronics). Five lists of performance tasks were developed, one for each occupation under study. A list of knowledge items was also developed from the research. Each list of knowledge and tasks was presented to a jury composed of people employed in the occupation for validation. Results of jury validations were then collated into one master list of knowledge items and tasks common to the five occupations. The list contained 308 items of electrical and electronics knowledge and 43 tasks.

Conclusions drawn from the results of the study were: (1) the identification of five occupations which were classified as a cluster of related electrical and electronics occupations, (2) the majority of tasks performed by those employed in the cluster are common to all of the occupations in the cluster, (3) a body of electrical and electronics knowledge was found to be common to the cluster, and (4) the common body of electrical and electronics knowledge was presented as a curriculum core for the defined occupational cluster.

Order No. 71-29,739, 177 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hailes (Last name), Charles (First name), William - (Middle name)

Exact Title THE DEVELOPMENT OF A MOTION PICTURE FILM FOR TEACHING PERCEPTUAL MOTOR SKILLS USING THE ZERO-ANGLE APPROACH.

Degree granted Ed.D., Date 1971 No. of pages in report 119

Granted by The Pennsylvania State University (Name of institution) University Park, Pennsylvania (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

This dissertation reports an experimental study to determine the relative effectiveness of face-to-face demonstration versus an instructional motion picture produced using the zero-angle.

The major objective was to develop a film produced from the zero-angle and used for teaching perceptual motor skills to vocationally-oriented students. The secondary objective was to evaluate the effectiveness of this film, comparing a manipulative skill (vee-butt weld) as taught by face-to-face demonstration as compared with a manipulative skill (vee-butt weld) as taught by the film.

The sample consisted of one hundred high school or post-high school students oriented to vocational education. The selection of these students was based upon three factors: 1. the students were occupationally oriented; 2. the students were completely naive in the welding area; and 3. the student G.A.T.B. profile met the minimum cutoff for arc welders.

The students were randomly assigned to Group A (experimental group), who were asked to perform a vee-butt weld after viewing the specially prepared film, and Group B (control group), who were asked to do a vee-butt weld after having been taught by an experienced instructor by the regular method of face-to-face demonstration. All welds were evaluated by six evaluators. The null hypothesis was used and rejected. There was a definite difference in the methods of teaching.

The results of this study indicated that there might be a definite advantage to teaching a perceptual motor skill, such as a vee-butt weld using a zero-angle produced film. There was some evidence that the environmental aspect may have some bearing on the method used. It was determined that for the majority of the population interested in learning perceptual motor skills, the zero-angle method used to produce a film does have definite advantages over a face-to-face method of teaching.

Order No. 71-28,692, 119 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hall (Last name), David (First name), Henry (Middle name)

Exact Title THE EFFECT OF OCCUPATIONAL INFORMATION ON THE INVENTORIED INTERESTS OF ELEVENTH GRADE BOYS.

Degree granted Ph.D., Date 1971 No. of pages in report 98

Granted by Columbia University (Name of institution) New York, New York (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Beginning at the high school level, students are in a position to make decisions which have important vocational implications. They must choose between college-preparatory, commercial, or vocational curricula, and must begin to formulate career plans for post high school training or entry into the labor market.

Sound educational and vocational planning, in turn, takes into account occupational interests. Although interests may be measured in many ways, inventoried interests, as measured by instruments like the Strong Vocational Interest Blank,[1] have been shown to have substantial predictive validity. The inventoried interests of high school students, however, tend to be less permanent than those of adults and must be interpreted with some caution. The reasons for the relative instability of interests at the high school level are not thoroughly understood. Because they possess relatively little information about the occupations which they hope or expect to enter, and probably even less about occupations-in-general, high school students may change their responses to items on interest inventories after acquiring additional information. If this were shown to be the case, it might be possible to increase the diagnostic significance of scores on interest inventories by supplying high school students with occupational information prior to the administration of an interest inventory.

The present study was designed to investigate the impact of relevant occupational information on the inventoried interests of high school boys. The instrument used, the Strong Vocational Interest Blank, was administered on two different occasions approximately one week apart. Immediately prior to the second administration, treatment subjects received occupational information specifically related to a number of items in Part I (occupational titles) of the SVIB, whereas control subjects received no occupational information. Treatment information was presented in the format of a true-false game with cash prizes offered for correct solutions. Cash prizes awarded on the basis of a lottery-like drawing provided an incentive for the control subjects.

Four hypotheses were advanced: (A) Occupational information which is important to the subject but lacked, has a significant effect on his SVIB Part I scores; (B) Occupational information which is unimportant to the student or already known to him, has no significant effect on his SVIB Part I scores; (C) Occupational information has no significant effect on a student's SVIB Part IV (occupational activities) scores; and (D) Occupational information related to job content (duties, education and training, and special abilities) has a greater effect on a student's SVIB Part I scores than information related to job context (earnings, availability of openings, and chance of advancement). The effect of information was measured by comparing the SVIB test-retest score differences of treatment subjects with those of control subjects by analysis of variance techniques.

Hypotheses A and D were rejected. On the basis of the findings in this study, it must be concluded that relevant occupational information has no significant effect on either SVIB Part I or Part IV scores. Moreover, it must be concluded that this is the case regardless of whether the information is deemed important or unimportant by the student, whether it is lacked or already possessed by him, or whether it is related to job content or job context. Hypotheses B and C were accepted.

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[1] Edward K. Strong, Jr., Strong vocational interest blank. Stanford: Stanford University Press, 1966.

Order No. 72-1320, 98 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Harding, Larry, Gladwin
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT OF A COMPUTER MANAGED INSTRUCTIONAL (CMI) SYSTEM IN NAVAL AIR TECHNICAL TRAINING.

Degree granted Ed.D., Date 1971 No. of pages in report 191

Granted by The University of Tennessee Knoxville, Tennessee
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Individualized instructional systems may be more effective and efficient than present instructional systems. Computers have the potential for making individualized instructional systems a reality for large numbers of students by providing necessary administrative and instructional support.

This dissertation describes the initiation of computer managed instruction (CMI) in Naval Air Technical Training in 1967 and provides a description of the system being developed.

Four studies which have contributed to the development of the CMI system are presented. The problems investigated include (a) the determination and validation of course objectives, (b) the effectiveness of programmed instruction in a difficult subject area, (c) the selection of a medium to teach complex motor skills, and (d) the effect of incentives in a simulated CMI system.

The primary results of the studies indicate that (a) careful analysis of course objectives can reduce training time without lowering student achievement in subsequent training or on Advancement in Rating exams, (b) programmed instruction is an effective and efficient means of teaching difficult subject matter, (c) programmed instruction could be implemented in a more effective and efficient manner if courses were developed which would allow students to proceed in a self-paced fashion and incentives were provided for early course completion, and (d) incentives which are presently available in the military can be distributed on a more equitable basis and can be used to reduce training time in the CMI system without lowering student achievement or affecting favorable student attitudes.

Order No. 71-29,468, 191 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hobbs (Last name), Addison (First name), Seaburn (Middle name)

Exact Title A COMPARATIVE STUDY OF THE TRADE ACHIEVEMENT AND SATISFACTION OF SECONDARY AREA VOCATIONAL SCHOOL STUDENTS IN TWO- AND THREE-YEAR SPECIALIZATIONS PROGRAMS IN THREE SKILL TRADES.

Degree granted Ed.D., Date 1971 No. of pages in report 83

Granted by Rutgers University The State University of New Jersey (Name of institution) New Brunswick, New Jersey (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The purpose of this study was to compare the achievement and satisfaction of vocational high school students in two- and three-year skill specialization programs for automotive mechanics, basic electricity and printing. The experimental group consisted of students given an opportunity to continue trade exploration during the tenth grade before specializing in the eleventh and twelfth grades; while the students representing the control group began their trade specialization immediately upon entering the vocational school at the tenth grade level.

Subjects utilized in the achievement phase of the study to represent the control and experimental groups covered a three-year period of time which contributed to the after-the-fact aspect of the research design. The mean achievement scores of 216 subjects from three Ohio Trade and Industrial Achievement Tests (automotive mechanics, basic electricity, and printing) were subjected to the t-test.

A Satisfaction Scale was used to elicit responses from a total of 180 subjects in the control and experimental situations in the tenth, eleventh and twelfth grades to determine students' satisfaction.

The null hypotheses for this study were:

H_1 Trade achievement of students in three-year forced-choice vocational programs is not significantly different from that of students in two-year specialization programs for:
  a. automotive mechanics
  b. basic electricity
  c. printing

H_2 Satisfaction of students in three-year forced-choice programs is not significantly different from that of students in two-year specialization programs.

The statistical analysis derived from the trade achievement mean scores rejected the null hypothesis for all three skill trades when they were subjected to the t-test. Significant differences in mean scores were observed for automotive mechanics and printing in the direction of the experimental group, while in basic electricity the significant difference was in the direction of the control group.

A significant difference in students' satisfaction was established statistically when the mean scores of the subjects enrolled in the control and experimental situations were subjected to the t-test. This difference was shown to be in the direction of the experimental group.

The results from the t-test applied to the mean achievement and satisfaction scores of subjects in automotive mechanics and printing support the theories that recommend diversified approaches for vocational education programs. The length of time spent in manipulative activity can be balanced with the development of attitudinal self-concepts to shorten the actual training periods of students without diminishing measurable achievement.

Adequate guidance to perpetuate valid career choices for students before reaching high school is important when the achievement of the individual requires a commitment to post high school education.

Finally, significant differences in students' satisfaction do occur when the same trade program with similar objectives, is offered in different time allotments.

Order No. 72-1085, 83 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Hurley (Last name) Carl (First name), Edward (Middle name)

Exact Title THE EFFECTS OF FEEDBACK ON PSYCHOMOTOR PERFORMANCE OF FOURTH AND SIXTH GRADE STUDENTS.

Degree granted Ed.D., Date 1971 No. of pages in report 105

Granted by University of Missouri (Name of institution) Columbia, Missouri (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

PURPOSE: It was the purpose of this study to ascertain whether or not there is a significantly different level of psychomotor performance among students who experience the following feedback treatments: viewing a videotape recording of their own performance; rating their own performance with the aid of a check sheet while viewing their own actions by means of videotape recording; rating their own performance with the aid of a check sheet alone; or receiving none of the experimental treatments (control group).

A secondary purpose was to ascertain whether or not grade level is related to the learning of psychomotor performance.

METHOD OF RESEARCH: The subjects for the study were 80 students enrolled in two fourth grade classes and two sixth grade classes at the Laboratory School at Eastern Kentucky University, Richmond, Kentucky. Twenty boys and 20 girls were selected at random from each grade level. Ten subjects, five boys and five girls, were alternately assigned to one of three experimental groups and a control group.

The psychomotor tasks (operations) of layout, holding, cutting and assembling were presented to each subject individually through the use of an 8mm motion picture film and audio tape recording. After receiving the presentation each subject performed the four operations and his performance was videotaped. Then the respective feedback treatment was administered and the subject performed the same operations a second time. Each subject's second performance was videotaped for rating by three trained judges. A check sheet was used to produce a performance score on each of the four operations for each subject.

FINDINGS: Statistical tests at the .05 level of significance indicated the following: (1) For layout operations, the group in which each student rated his own performance with the aid of a check sheet while viewing a videotape replay of his own performance scored significantly higher than the control group; (2) for cutting operations, each treatment group scored significantly higher than the control group; (3) for assembling operations, the groups which used the check sheet alone and the check sheet combined with a videotape replay of their own performance scored significantly higher than the group which received the videotape replay alone and the control group; (4) there were no significant differences among treatment groups for holding operations; (5) there were no significant differences between grade levels for any of the four operations.

CONCLUSIONS: It was concluded that when a student rates his own performance of layout operations with the aid of a check sheet while viewing a videotape replay of his own performance, a higher level of performance does result. A higher level of performance of cutting operations does result when the student views his own performance on videotape; rates his own performance with a check sheet; or rates his own performance with a check sheet while viewing a videotape recording of his own performance. A higher level of performance of assembling operations does result when the student rates his own performance with a check sheet or when he rates his own performance with a check sheet while viewing a videotape recording of his own performance. For holding operations, the feedback treatments do not appear to raise the level of performance.

Order No. 71-30,710, 105 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Johnson, Frank, Frederick
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE EFFECTS OF SHIFT OPERATIONS ON STUDENT ACHIEVEMENT IN ELECTRONICS TRAINING.

Degree granted Ed.D., Date 1971 No. of pages in report 118

Granted by Rutgers University The State Universit of New Jersey New Brunswick, New Jersey
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Problem

This study assessed the academic achievement of students assigned to one of three shifts at a U.S. Army Service School which was engaged in teaching electronics on a 24-hour basis.

The research investigated two principal areas. The first was the question of whether or not there was any significant difference in the academic achievement of the students assigned to the day, evening, or night shift. The second part of the study investigated whether or not perceived physiological, educational, and social needs influenced the students' achievement on the various shifts. The final analysis was to determine if the three perceived needs were met equally among the three shifts.

Procedures

A scale designed to measure the degree of deprivation in the three perceived needs areas was administered to a group of 279 students, randomly assigned among the three shifts, upon the completion of nineteen weeks of electronics studies. Analysis of covariance was used to determine if the shifts scored equally well in academic achievement. Analysis of variance was used to determine if perceived needs were equally well met among the three shifts. The final analysis resulted in a coefficient of correlation to determine if perceived needs had any significant relationship to achievement.

Results

Based on the statistical analyses, it was determined that the night shift (11 P.M. to 7 A.M.) achieved significantly lower than did the other shifts. The evening shift scored highest, with the day shift occupying the medial position.

It was further determined that perceived need deprivation did not significantly influence achievement. The statistical findings rejected the hypothesis that perceived needs would be met equally among the shifts. The night shift reported significant deprivation of educational and physiological needs with the evening shift reporting the least deprivation. The evening shift reported the greatest social need deprivation with the night shift reporting the least social need deprivation.

Conclusions

Although it was demonstrated that the students on night-shift training did not perform as well as did their fellow students on other shifts, empirical evidence indicated that multi-shift training was successful. This study suggests that the undesirable features of night-shift training can be mitigated by assigning students to the shift that would take advantage of their individual strengths. Other conclusions suggest that the careful management of facilities would further increase learning efficiency by insuring good rest and study facilities as well as providing a more stimulating classroom environment.

Order No. 72-1088, 118 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Klabenes (Last name), Robert (First name), Eugene (Middle name)

Exact Title ASSESSMENT OF THE RESULTS OF AN INSERVICE EDUCATION PROGRAM FOR POST-SECONDARY VOCATIONAL-TECHNICAL EDUCATION INSTRUCTORS.

Degree granted Ed.d., Date 1971 No. of pages in report 139

Granted by The University of Nebraska (Name of institution) Lincoln, Nebraska (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Statement of the Problem

The purpose of this study was to assess the results of an inservice education program designed to assist post-secondary vocational-technical education instructors in modifying their classroom teaching behavior. The primary intent of the workshop was to increase instructors' skills in recognizing component aspects of classroom instruction. An implied purpose of the workshop and subsequent treatment was to encourage instructors to accept the need for continual modifications in their classroom teaching behavior. For purposes of this study, instructor classroom teaching behavior was classified into four specific component aspects: (1) psychomotor domain instructional objectives, (2) instructor teaching methods, (3) instructor verbal expressions, and (4) instructor non-verbal expressions.

Procedures

Seventeen instructors from the Nebraska Vocational Technical College, Milford, Nebraska, participated in the study. The pre-test consisted of three twenty-minute video tapings of each instructor in a classroom session presenting three different learning concepts. At the end of the pre-test, all instructors participated in a six-hour inservice education workshop.

The post-test comprised three twenty-minute video tapings of instructors presenting the identical learning concepts as during the three pre-test tapings. Each post-test taping was analyzed by the particular instructor with the assistance of the investigator.

Data were collected by having trained raters use a modified form of Roberson's "Self-Appraisal Instrument."

The basic question of the study was: "Did post-secondary vocational-technical education instructors significantly change their classroom teaching behaviors between the pre- and post-test?" Additional questions were asked to determine whether the changes would reflect (1) greater utilization of higher level instructional objectives within the psychomotor domain, (2) employment of the more open-ended teaching methods, and (3) increased use of the more encouraging verbal and non-verbal expressions.

Findings and Conclusions

1. Concerning the question: "Did post-secondary vocational-technical education instructors significantly change their classroom teaching behaviors between the pre- and post-test?" analysis of the data yielded the following F values: (1) 2.98 for instructional objectives within the psychomotor domain, (2) 3.00 for instructor teaching methods, (3) 4.58 for instructor verbal expressions, and (4) 7.45 for instructor non-verbal expressions. All F values were statistically significant at the .05 level, indicating *instructors did exhibit significant changes in their classroom teaching behaviors.*

2. The second question posed by the study was: "Did instructors utilize higher level instructional objectives within the psychomotor domain during the video tapings taken after the workshop when compared with the tapings taken prior to the workshop?" Analysis of the data yielded an F value of 1.86, which led to the conclusion that *instructors did not, in fact, incorporate higher levels of instructional objectives.*

3. An F value of 2.11 was yielded for the question: "Did instructors employ more open-ended teaching methods during the post-tapings than during the pre-tapings?" This was not statistically significant; hence, *no evidence was obtained that more open-ended teaching was employed.*

4. Analysis of the data concerning the final question: "Did instructors exhibit more encouraging verbal and non-verbal expressions during the post-tapings than during the pre-tapings?" yielded an F value of 5.14 for verbal expressions and 5.91 for non-verbal expressions. Both values were statistically significant; consequently, the evidence supported the hypothesis that the *inservice education workshop and ancillary treatment produced greater utilization of the more encouraging verbal and non-verbal expressions.*

Although all changes were not consistent with the stated hypotheses, this study demonstrated that an inservice education program which incorporates self-appraisal techniques can assist post-secondary vocational-technical education instructors modify their classroom teaching behaviors.

Order No. 71-28,626, 139 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Kollin (Last name), Robert (First name), (Middle name)

Exact Title A STUDY OF THE EFFECT OF HIGH SCHOOL MATHEMATICS ON THE ACADEMIC AND JOB ACHIEVEMENT OF SELECTED COMMUNITY COLLEGE TECHNICAL PROGRAM GRADUATES.

Degree granted Ed.D., Date 1971 No. of pages in report 121

Granted by Wayne State University (Name of institution) Detroit, Michigan (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Scientific and technological developments in the past two decades have affected the organizational structure of employment in skilled engineering and scientific fields. The role of the technician is a major new element in the organizational structure. The technician provides the supportive services to fill the gap between the skilled craftsman who has the manipulative skills, and the engineer who is more skilled in theoretical scientific mathematical areas and has little interest and/or skill in the practical aspects of the job.

Since comprehensive community colleges maintain an "open door" policy, they must assume the responsibility for developing technical programs which meet the needs of a heterogeneous student body and at the same time, meet the needs of industry. Therefore, in addition to skill training, the basic curriculum for the technician emphasizes applied mathematics and science. An area of controversy in the development of technical programs is determining (1) the appropriate college technical mathematics to offer and (2) the level of high school mathematics necessary to enter a technology program.

This study was conducted to determine the effects, if any, of high school mathematics on the academic and job achievement of a selected group of students who were graduated from the technical program at Henry Ford Community College in 1964 and 1965.

The group studied consisted of sixty-eight graduates from a two-year technology program. Since competency in mathematics is considered to be essential to success in a technology program, the students were categorized into three groups according to the amount of mathematics and shop courses taken in high school. The students who had no more than one year of algebra and geometry and five or more semesters of shop were identified as the vocational-general group. The second group, identified as college preparatory, consisted of students who had two or more years of algebra, one or more years of geometry, as well as a number of science courses. A third group represented those students who had the same mathematics and science preparation as the college preparatory group and also had five or more semesters of shop. This group was identified as the modified group.

In order to determine academic achievement, the high school grades for each group were compared to the grades earned in college technical mathematics, technical science, major technical subject and total college average. A comparison of the means of the groups for each of the college factors was used to analyze the data.

The second phase of the study focused on the job achievements of the students. The data were gathered by conducting personal interviews which provided information on salaries, job responsibilities, long-range goals, attitude toward college program and job satisfaction. The Job Descriptive Index was used to determine job satisfaction. Seventy-eight percent of the students were located and interviewed for this phase of the study.

The most important findings were: (1) The use of high school mathematics grades to predict achievement in college technical mathematics had some basis for consideration, but only for the students in the study population identified as the vocational-general group; (2) The students in the study population identified in the college preparatory and modified groups achieved higher in college technical mathematics and science than the vocational-general group; (3) There was little difference in academic achievement between the three groups in the college technical major and total college average; (4) The students in the study population who were identified in the vocational-general group had a higher degree of job satisfaction than either of the other groups; (5) The students identified with the vocational-general group had the highest mean salary; however, there was no significant difference in salary between the groups; (6) Sixty-nine percent of the individuals were in jobs for which they were trained; (7) The group identified with the college preparatory group had higher aspirations toward continued education than the group identified as vocational-general; and (8) The students in the study generally believed that the associate's degree in technology was essential in obtaining their first position, but that attitude and human relations skill was important for continued job progress.

Order No. 71-29,758, 121 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Lento , Robert , none
(Last name) (First name) (Middle name)

Exact Title A DESCRIPTIVE AND DEVELOPMENTAL STUDY OF THE DESIGN AND USE OF FLEXIBLE MOLDING DEVICES FOR WOOD LAMINATION BENDING IN INDUSTRIAL ARTS PROGRAMS.

Degree granted Ed.D. , Date 1971 No. of pages in report 161

Granted by Columbia University New York, New York
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The basic premise of this study was that an improvement in design could be promoted by providing industrial arts students with a device and a system for bending laminated wood. The study had the following aims:

1. To bring to industrial arts students and educators an awareness of the possibilities for a more complete realization of the potential of wood as a material, through wood lamination bending.
2. To provide information in a form that would encourage the utilization of wood lamination bending in industrial arts programs.
3. To provide a rationale for design in wood lamination bending that would assist the novice industrial arts craftsman in the analysis of his own design efforts.
4. To compile and develop information specifically tailored for use in industrial arts programs using existing facilities, and student producible devices to accomplish wood lamination bending.
5. To develop, test and describe a device which could be fabricated by industrial arts students and teachers, and which could be used to produce a variety of laminated shapes.

The study includes a chapter on design analysis. Pieces from a variety of sources are analyzed with special emphasis placed on laminated components.

A detailed description of the device developed in this study is included in the document. This description includes information on the fabrication and use of the variable lamination device. Suggestions are given for processing the laminated components produced into furniture.

The final section of the document is devoted to suggestions and recommendations for the implementation of laminated wood bending in industrial arts programs.

Included in the appendix of the document are suggested sources of materials, useful tables and a detailed description of the developmental work that went into the design of the variable laminating device itself.

Order No. 72-1249, 161 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Line, John, Dundas
(Last name) (First name) (Middle name)

Exact Title DETERMINATION OF THE TRAINING NEEDS OF FOREMEN IN A LARGE ENGINE PLANT BY USE OF THE CRITICAL INCIDENT TECHNIQUE.

Degree granted Ed.D., Date 1971 No. of pages in report 124

Granted by Wayne State University Detroit, Michigan
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

This dissertation represents an attempt to determine the training needs of factory foremen by the use of a measuring instrument. The measuring instrument is a test developed from critical incidents of foreman performance as observed by general foremen. The foremen and general foremen involved are employed at a large automotive plant in the midwest.

Procedure

For this dissertation forty-seven general foremen were used to observe the behavior of 247 foremen in the areas of machining, assembly, inspection, and material handling. The general foremen were trained for observing and recording critical incidents of behavior and made 515 observations over a three-month period. These incidents were analyzed and categorized to be used as a basis for the construction of a measuring instrument to measure the knowledge possessed by foremen as to good foreman performance.

The measuring instrument was constructed using a multiple choice best answer format. The instrument was composed of two equal Forms, A and B, both with 32 questions for purposes of checking reliability, but the results for determining needs were based on the whole test or 64 questions.

The test was given to three groups randomly selected from three stratifications. Group A consisted of (20) foremen with more than three years experience as foreman, Group B consisted of (20) foremen with three years or less experience as foremen, and Group C consisted of (20) pre-foremen who had no experience as foremen. A correlation coefficient of .495 was generated for Form A and Form B of the test using the Pearson Product Moment Method to check for reliability. Validity was checked by correlating test results with the results from testing also with File's test "How Supervise." The coefficient for this correlation was .341 using the Pearson Product Moment Method. A second validity check was made by correlation of test results with foreman rankings by their general foremen. This coefficient was .77.

Results

The results from the test showed that, as could be logically expected, the Group A (older foremen) did better than Group B (newer foremen), and Group B did better than Group C (pre-foremen). However, the results on Group A and Group B were much closer than for Group C.

Group A and B showed the greatest need for training in the categories Maintaining and Utilizing Equipment, Housekeeping and Safety, and Handling Labor Relations. Group C (pre-foremen) showed the greatest need for training in the categories Housekeeping and Safety, Controlling and Reducing Costs, and Planning Work and Making Schedules.

Results analyzed on a basis of education were null due probably to 77% being high school graduates with only 13% with some high school experience and 10% with some college experience. Analyzing by age showed the youngest group from 21 - 25 years of age as the group needing training while the 41 - 46 group showed the least need of training.

Discussion

Although results were analyzed by experience as foremen, age, educational level, and working area, it was concluded that for grouping, if group training were desired, the best way would be to have all foremen tested and the groupings be made on test results. Also the conclusion was reached that the mastery shown by some foremen in certain categories should exempt them from any further training in these categories.

Further extension of this method of determining foreman training needs is needed to fully validate the method and the test. Likewise it would be desirable to try the method in other industries.

Order No. 71-29,763, 124 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Linksz , James , Joseph
(Last name) (First name) (Middle name)

Exact Title A PLAN FOR IMPROVING ARTICULATION IN OCCUPATIONAL EDUCATION BETWEEN PUBLIC SECONDARY SCHOOLS AND COMMUNITY-JUNIOR COLLEGES IN MARYLAND

Degree granted Ed.D. , Date 1971 No. of pages in report 271

Granted by Columbia University New York, New York
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The study was developed to determine the extent to which there is articulation between high school and community college technical programs in the state of Maryland where there is an historically close relationship between the two levels and where effective interconnections might be expected to exist. The study had six objectives:

To focus on the major and underlying issues in the articulation of occupational education and to identify these issues in their historical context;

To identify in some detail the components of effective articulation in occupational education;

To make a detailed survey to determine if these components of effective articulation are operative;

To identify major problem areas with regard to effective articulation of occupational education;

To solicit suggestions and recommendations with regard to effective articulation measures which might be employed; and,

To synthesize the information gathered into a plan for improving articulation in occupational education in Maryland.

To identify the major issues and components of the articulative process, the literature relevant to the subject was reviewed and several guided interviews were carried out with knowledgeable individuals. Out of this process emerged an understanding of the climate surrounding articulation in technical education and of the three major dimensions of articulation—Information, Communication, and Interaction.

A questionnaire was developed, tested, revised and mailed to 714 persons at community college, high school, and county school administration levels whose activities were articulation related. Five hundred twenty-five responses (73.5%) were tabulated by computer. Printouts were designed to reveal differences in response by counterpart staff at different levels, as well as aggregate data by county, by position title, and by total level.

Results of the study indicated that:

Information and communication were better between counselors than between administrators or occupational faculty;

Board mandate for cooperation is perceived to exist but roles and responsibilities are not specified by level;

Cooperative program development facilitating transitions between the levels is very limited;

Cooperative use of or planning for specialized technical facilities is limited;

Intervisitation and knowledge of programs operating at other levels is limited;

The community college position on granting credit or advanced standing for high school occupational coursework is confusing;

Both high school and community college have occupational education roles, as perceived by respondents;

Current preparation of occupational students by high schools is not perceived as uniformly effective;

High school occupational programs could prepare students simultaneously for job-entry and continued education, as perceived by respondents; and,

Local administrators and faculty should take leadership in stimulating articulation.

Comparing these results to the normative, dimensional components resulted in the following plan to improve articulation in occupational education:

Assure complete faculty information;

Assure student awareness of community college occupational study opportunities;

Assure parent awareness of community college occupational study opportunities;

Develop and disseminate policies specifying roles and responsibilities for occupational education;

Stimulate counterpart interchange and communications on all levels - students, faculty, administrators, counselors;

Stimulate counterpart visitation and acquisition of first-hand knowledge about programs, facilities, and objectives;

Cooperatively develop occupational programs which span high school and community college years;

Where appropriate, jointly use and develop facilities for teaching similar occupational specialties;

Clarify credit and advanced standing policies at the community college; and,

Coordinate and stimulate local articulation leadership efforts through state-level priorities and facilitating mechanisms.

Order No. 72-1250, 271 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Marcinowski, Mary Evelyn, Brannan
(Last name) (First name) (Middle name)

Exact Title TECHNICAL MATHEMATICS FOR TWO-YEAR ELECTRONICS PROGRAMS.

Degree granted Ed.D., Date 1971 No. of pages in report 217

Granted by Auburn University Auburn, Alabama
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

This research project resulted in the development of programed mathematics materials and laboratory projects in electronics technology. The materials were prepared so that they should be appropriate for the teaching of technical mathematics for electronics in two-year post high school vocational-technical schools.

The mathematics topics included in the materials were those topics isolated by Jerold J. Simons in a study entitled "Surveying the Mathematics Preparation of Today's Electronics Technicians."

The electronics topics included in the materials were selected from a list compiled by Richard J. Vasek in a study entitled "A Comparative Analysis of Electronics Content in Public Post-High School Technical Institutes and Electronics Requirements of Industry." Order No. 71-27,837, 217 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author McPherson, Daniel, William
(Last name) (First name) (Middle name)

Exact Title FACULTY PARTICIPATION IN DECISION-MAKING IN THE COMMUNITY COLLEGES AND VOCATIONAL SCHOOLS OF IOWA

Degree granted Ed.d., Date 1971 No. of pages in report 229

Granted by University of South Dakota Vermillion, South Dakota
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose

The purpose of this study was to determine and compare the perceptions of actual and desired faculty participation in decision-making held by academic faculty, applied faculty, and administrators of the Iowa area schools.

The research sought to answer the following questions: (1) Are there specific differences in the perceptions of the degree of existing faculty participation in decision-making according to groupings of the academic faculty, applied faculty, and administration; (2) Are there specific differences in the perceptions of the degree of desired faculty participation in decision-making according to groupings of the academic faculty, applied faculty, and administration; (3) Are there specific differences in the importance attached to categories of educational decisions according to groupings of the academic faculty, applied faculty, and administration; (4) Are there specific differences in the importance attached to faculty participation in decision-making in categories of educational decisions according to groupings of the academic faculty, applied faculty, and administration.

Responses were obtained which facilitated an examination of similarities and differences in perceptions of existing and desired faculty participation in decision-making according to the variables of sex, teaching experience, and level of educational attainment as well as position held by participating staff members in Iowa area schools.

Procedures

The population of the study was composed of all certified employees in the fifteen community colleges and vocational schools of Iowa. A stratified random sample of eighty academic faculty members, eighty applied faculty members, and eighty administrators in the fifteen Iowa area schools was selected using a table of random numbers.

The instrument used in conducting this study was designed to examine the agreement and disagreement of the respondents on the participation of community college faculty members in specific decisions. The questionnaire was developed and validated by Joseph A. Malik at the University of Oregon in 1968. For purposes of this study, the instrument was called the Malik Decision-Making Questionnaire.

The research design required the testing of ten null general hypotheses. For eight null general hypotheses, the first statistical test used was the two-way analysis of variance. Where the "F" score was found to be significant at the .05 level, the differences between the means were tested to locate specific differences by using the "t" test. For the two null general hypotheses which pertained to data collected in the ranking section of the questionnaire, the Spearman Rank Correlation Coefficient was utilized to test the strength of the association of the ranks.

Findings and Conclusions

The results of the testing of seventy null operational hypotheses indicated significant differences existed in forty-two instances when tested using the two-way analysis of variance. However, the two null operational hypotheses which required the utilization of the Spearman Rank Correlation Coefficient were retained.

It was concluded that in general the perceptions of the three respondent groups, (academic faculty, applied faculty, administration), relative to the existing faculty participation in decision-making were significantly different and that in general that difference appeared to be related to the position held by the group (academic, applied, administration).

However, when the perceptions of the desired levels of faculty participation in decision-making were considered, the academic and administrator respondent groups were in agreement and the academic and applied faculty groups were not in agreement. The applied faculty and administration did not agree on the amount of faculty participation in decision-making which they considered desirable.

It was found that in general there was agreement among the groups when ranking the decision categories in the order of perceived importance and in the order of importance for faculty participation in decision-making.

Order No. 71-27,820, 229 pages

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Miller, David, Hendrick
(Last name) (First name) (Middle name)

Exact Title THE ROLE OF THE INDEPENDENT INVENTOR IN THE EARLY DEVELOPMENT OF ELECTRICAL TECHNOLOGY.

Degree granted Ed.D., Date 1971 No. of pages in report 106

Granted by University of Missouri Columbia, Missouri
(Name of institution, (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

PURPOSE: The purpose of this study was to present an account of invention and innovation in electrical technology, placing particular emphasis upon the contributions of the independent electrical scientist.

METHODOLOGY: A comprehensive account of the contributions of the inventor Nathan B. Stubblefield (1860-1928) was reported. An overview of invention in electrical communication was presented so as to allow Stubblefield's work to be viewed in perspective. These inventors' accomplishments were reported only when they could be shown to have influenced Stubblefield's life and work. In order to develop a rationale for the study of invention, the following elements of invention were identified after a review of the findings of selected experts: (1) creativity in invention; (2) invention as synthesis; (3) the role of need in invention; (4) the role of experience in invention.

MAJOR FINDINGS: Nathan B. Stubblefield was a self-educated electrical technician whose early work as a telephone contractor led him to experiment with the new science of wireless telephony. Among Stubblefield's earliest inventions were a "vibrating" telephone in 1888, a dial-operated "bell telegraph" in 1890, and an "electric bell" telephone in 1893. An "electrical battery" developed by the inventor in 1898 served as the key to his later successes in wireless telephony.

In 1902 Stubblefield demonstrated a wireless communication system which operated on the principle of conduction. Stubblefield's transmitter comprised two ground electrodes well separated. An audio frequency voltage set up between the electrodes was picked up on a voltage drop or leakage basis from distances approximating the separation of the electrodes themselves. This system was never improved to the extent that long distances could be achieved. The drop in power varied (roughly in proportion with the cube of the distance) thereby limiting the system to only a few miles at most.

By 1907 Stubblefield abandoned the "conduction" system in favor of a system which employed the principle of induction. A grandiose scheme for connecting the continents of America and Europe with wireless telephony was proposed by the inventor in 1907.

Two wireless companies were formed on the basis of Stubblefield's two distinctly different methods of wireless transmission. Both met with failure. Stubblefield withdrew from the active promotion of inventive work after the failure of his "Stubblefield Wireless Enterprise" in 1908 and spent the remaining twenty years of his life in virtual seclusion. Nathan Stubblefield died on March 28, 1928, alone, penniless, and all but forgotten. In 1930, a monument was dedicated to his memory in a ceremony on the Murray State University campus. The monument credited Stubblefield as being the first to transmit the human voice without wires.

The *New York World's* 1931 *Almanac* listed Stubblefield among the 61 greatest inventors of all time. As late as 1969, the *World Almanac*, under the heading "Great Inventions—American," credited Stubblefield as the inventor of the first radio sending apparatus in 1902.

The *Washington Post* on January 1, 1950, ranked Stubblefield's 1902 marine broadcast in Washington as one of the most important scientific achievements of the first half of the twentieth century.

Order No. 71-30,712, 106 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Munisteri (Last name) Anthony (First name), (Middle name)

Exact Title A STUDY OF THE HOLDING POWER OF A COOPERATIVE EDUCATIONS PROGRAM FOR MALE, POTENTIAL DROPOUTS, IN AN EAST HARLEM, NEW YORK CITY, VOCATIONAL HIGH SCHOOL

Degree granted Ed.D., Date 1971 No. of pages in report L)¢

Granted by Columbia University (Name of institution) New York, New York (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The purpose of this study is to evaluate the holding power of a cooperative education, or work-study program, as it affected a specified student sample of potential dropouts of maximum grade 10, and minimum age 16. The target school is an all-boys vocational school in East Harlem, New York City.

The data bank was comprised of the target school's live register and "dead" files, the students' permanent records and daily attendance cards, records of admissions and discharges, subject class cuts, and out-of-school employment reports related to the cooperative education program.

The data that was compiled was recorded in nine appendices, and presented and analyzed in five tables. The results grew out of an ex post facto compilation and comparative analysis of the records of two groups of students assumed comparable, one group exposed to the cooperative education program, and the other to the regular vocational program.

The variables controlling the population samples of both groups, were male sex, maximum grade 10, minimum age 16, registration in a terminal vocational program, and in attendance within a specified two-year time period. The total number of students involved in this study was 62.

As a result of this investigation, it was found that for the two year period:

a. There were approximately 50 percent more students in the cooperative education program who persevered or did not drop out, than there were in the regular vocational program.

b. The cooperative education students were motivated to attend school (and go to work) more often; had a better record of punctuality and a lower record of subject class cuts, than the students in the comparison group in the regular vocational program.

c. The students in the cooperative education program were motivated to learn more effectively so as to advance an aggregate of 32 more terms than the students in the regular program.

d. Six times as many cooperative students as those in the regular program advanced enough grades to graduate.

Order No. 71-28,010, 106 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Naroff (Last name), Arnold (First name), (Middle name)

Exact Title A PROGRAMED OCCUPATIONAL AND EDUCATIONAL GUIDANCE INFORMATION UNIT IN INDUSTRIAL ARTS METALWORKING: THE DEVELOPMENT OF A PROGRAMED UNIT OF INSTRUCTION IN OCCUPATIONAL INFORMATION AND EDUCATIONAL GUIDANCE FOR NINTH- AND TENTH-GRADE STUDENTS IN INDUSTRIAL ARTS METALWORKING CLASSES IN THE PUBLIC SECONDARY SCHOOLS OF THE CITY OF NEW YORK.

Degree granted Ed.D, Date 1971 No. of pages in report 265

Granted by New York University (Name of institution) Washington Square, New York (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Providing educational and occupational guidance is a recognized objective of industrial arts education. Too frequently, teachers neglect to do the things necessary to achieve the objective. The lack of appropriate materials has been offered as one of the reasons.

An investigation was, therefore, undertaken to develop a programed text relating to occupational information and educational guidance suitable for ninth- and tenth-grade boys in industrial arts metalworking classes in New York City. A short program manual was also developed to provide the teacher, curriculum supervisor, and other educational personnel with information that would assist them in the appraisal and the use of the programed text.

The initial problem of this study was to write the programed unit of instruction. Further problems included the administration of the unit to selected students and the evaluation of the unit.

A variety of procedures and instruments were used to obtain a basis for writing the unit.

A questionnaire was developed and sent to one hundred and sixty-nine teachers of industrial arts metalworking in New York City. The information obtained from the questionnaire provided the objectives used for the unit's lessons. They included the development of a knowledge of (1) the variety of occupations in metalworking; (2) the job tasks, training requirements, and employment opportunities of four selected occupations, and (3) the relationship of education and training to earnings.

A flexible time length of four to eight, forty-minute periods was selected for the unit.

The specific content of the unit was obtained from a variety of authoritative sources. Seven informed persons validated the subject matter. The reading level approximated sixth grade. Photographs depicting people employed in the various occupations contained representation from the three major ethnic groups found in New York City.

The three-lesson, linear, programed unit was organized in vertical textbook format. It was field-tested by one hundred and six, ninth- and tenth-grade students, and six teachers of industrial arts metal-working, in five junior and senior high schools in New York City, in the Spring of 1970.

There was a gain of 15.1 percentage points (N = 69) between the mean pre- and post-test scores for Lesson 1. Calculations of frame error rates identified areas of weakness in the program. Lesson error rates were also calculated. The validity of the error rates is in question because of suspected and observed student cheating.

All six teachers found it administratively practical to use the programed text.

All six teachers found the program content to be in close accord with their course objectives. Some changes were suggested.

A survey of students (N = 59) found that a majority of the students viewed the programed lessons as (1) easy to understand, (2) interesting, (3) enjoyable, and (4) containing everything they wanted to know about occupations. Interest in preparing for metalworking occupations increased. Some students engaged in a variety of activities that supplemented the programed unit. The reasons most often given for disliking the programed unit were that it was boring, and that it took time away from metalworking activities.

It was concluded that the determination of the effectiveness of the unit, in terms of achieving the stated objectives, must await further definitive evaluative studies. It was also concluded that a major revision of the text should be undertaken only after these studies are completed.

Recommendations for further research included adding more lessons to the unit, and studying the long-range effects of the program on curriculum choice and occupational selection.

Order No. 71-28,587, 265 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Nee, Nelsen, Ven-Chung
(Last name) (First name) (Middle name)

Exact Title A PROPOSAL FOR AN ADVANCED PROGRAM IN INDUSTRIAL EDUCATION FOR TAIWAN, REPUBLIC OF CHINA

Degree granted Ed.D., Date 1971 No. of pages in report 176

Granted by The University of Tennessee Knoxville, Tennessee
(Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The purpose of this study was to develop a four-year program of training for vocational industrial teachers (shop teachers) of Taiwan, Republic of China. Also, under this program, to propose a plan whereby the industrial education staff members in the different schools of Taiwan might complete the Master's degree with a major in Industrial Education (industrial education, shop teacher education, related subjects teacher education, industrial arts education, and vocational guidance).

Methods and Procedures

Proposals and recommendations were determined after the investigator had (1) completed a review of the latest literature and studies, (2) collected and reviewed all available information from the Ministry of Education of the Republic of China, and the Agency for International Development (formerly known as the Foreign Operation Administration, and International Cooperation Administration) of the Department of State, United States, (3) conducted interviews and visited schools, and (4) completed a detailed survey through questionnaires sent to the heads of industrial education departments in 18 outstanding universities and colleges in the United States, principals of 8 pilot vocational industrial schools in Taiwan, Republic of China, and to all returned participants of the industrial education program sponsored by the Mutual Security Mission to China of the United States. These questionnaires were designed to solicit information concerning: (1) advanced industrial education programs in the United States in order to determine the philosophy, trends, and essential elements of administration and teacher training which might be effectively applied to industrial education in Taiwan, Republic of China, and (2) the needs and requirements for advanced industrial education in Taiwan, Republic of China.

Proposals for Advanced Industrial Education Programs in Taiwan, Republic of China

Based on the results of the investigation a curriculum for a Bachelor's degree program with a major in Industrial Education for shop teachers in vocational industrial schools in Taiwan was proposed. Also, a curriculum for a Master's degree program with a major in Industrial Education (industrial education, shop teacher education, related subjects teacher education, industrial arts education, and vocational guidance) was prepared for Taiwan.

Recommendations for Industrial Education in Taiwan, Republic of China

Recommendations stressed were:

(1) special emphasis on effective summer, evening, and extension programs for advanced industrial education study,
(2) liberalization and shortening of present Master's degree resident requirements,
(3) establishment of a "teaching materials center,"
(4) continuous updating of the advanced program for vocational industrial education,
(5) establishment of a research grants system,
(6) a scholarship program for qualified staff study abroad,
(7) translation of current texts into Chinese, and
(8) securing and usage of international aid dollars.

Order No. 71-29,482, 176 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Neswick , Lawrence , Glen
(Last name) (First name) (Middle name)

Exact Title A MULTIVARIATE ANALYSIS OF SELECTED PREDICTORS OF FIRST YEAR COLLEGE ACHIEVEMENT AMONG GRADUATES OF COLLEGE PREPARATORY AND VOCATIONAL COOPERATIVE PROGRAMS.

Degree granted Ed.D. , Date 1971 No. of pages in report 103

Granted by University of Southern Mississippi Hattiesburg, Mississippi
(Name of institution, (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The Problem

The purpose of this study was to determine whether college preparatory programs and vocational cooperative programs were equally effective in influencing performance on first year college grade-point-averages and if the best predictor variables of these were similar for both groups.

Procedures

The subjects selected for this study were 331 college students who had graduated in May of 1968 from Midland Senior High School and Robert E. Lee Senior High School, both located in Midland, Texas. College grade-point-averages were self reported and comparison with a sample of college reported grades correlated at r = .96. Multiple linear regression techniques were utilized to analyze the multiple correlations for forty-eight variables obtained from a brief questionnaire and the student high school cumulative records.

Findings and Conclusions

Several hypotheses were postulated regarding the specific questions asked in this study.

H1. There is a significant difference in first year college grade-point-averages between graduates of college preparatory and vocational cooperative programs.

When the variables of group membership were used to predict the criterion variable the total R^2 was found to be .009. This was not significant when compared to chance and it was concluded that there was no difference in first year college grade-point-averages and this hypothesis was rejected.

H2. There is a significant difference in first year college grade-point-averages among graduates of vocational cooperative programs according to the specific course of study enrolled in while attending high school.

It was concluded that there was no significant difference in the first year college grade-point-averages for these groups and the hypothesis was rejected.

H3. Measurements of certain selected variables recorded in the student's cumulative record folder and other personnel records can be combined to form a significant set of predictors of college first year grade-point-averages.

The predictor sets utilized in this study constituted significant multiple predictor sets for all of the various sub-groups of subjects and the hypothesis was confirmed.

H4. There is a significant difference in the profiles of predictors of college first year grade-point-averages between graduates of college preparatory and vocational cooperative programs.

It was concluded that the profile of predictors for the vocational cooperative group was significantly different when applied to college preparatory students while the profile of predictors for the college preparatory group was significantly different when applied to graduates of the vocational cooperative program. The hypothesis was retained for the profile of predictors of the criterion for the college preparatory group.

H5. In a cross-validation study there is no significant difference in the obtained results between the high schools participating in the study.

The cross-validation of the obtained results indicated that the resultant values for the Lee High School predictors were found to be significantly different when applied to the composite or Midland High samples and the hypothesis was rejected.

Discussion

A major finding of the study was that graduates of the vocational cooperative program do as well in college as the graduates of the college preparatory program. Although the former is intended for the terminal student, participation in the program did not seriously restrict the graduate who desired to continue in college.

The findings that the best predictors of college achievement for the graduates of college preparatory programs are not the best predictors of college achievement for the graduates of the vocational cooperative programs should be of practical interest to counselors and college admission officers. The use of different predictors for students of different backgrounds may aid colleges in the selection process.

Order No. 71-28,843, 103 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Oman , Ronald , Nels
(Last name) (First name) (Middle name)

Exact Title THE SELF CONCEPT OF OCCUPATIONAL ABILITY AND RELATED CHARACTERISTICS IN COMMUNITY COLLEGE OCCUPATIONAL AND ACADEMIC STUDENTS.

Degree granted Ph.D. , Date 1971 No. of pages in report 185

Granted by Michigan State University East Lansing, Michigan
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

This study proposed to: (1) determine relationships among selected career development factors in community college students. These factors included perceived other's evaluation of occupational ability, perceived other's expectation of occupational choice, the self concept of occupational ability, occupational aspirations, and occupational plans. (2) Investigate relationships between these career development factors and socio-economic background, previous occupational experience, and previous occupational training. (3) Compare students on career development factors. These comparisons included male versus female, academic versus occupational, previous versus no previous occupational education, high versus low socio-economic status, and all possible interactions of these comparisons.

Subjects included 346 academic and 129 occupational freshman students of Jackson Community College, Jackson, Michigan.

Social interaction theories of George Herbert Mead provided the theoretical basis for this study.

The self concept of occupational ability and perceived other's evaluation of occupational choice were measured in two ways: by scale instruments and by answers to questions relating to socio-economic status levels of occupations. *Self concept of occupational ability* scales had been developed by Brookover and associates of Michigan State University for previous research. *Perceived other's evaluations of occupational ability* scales were devised by the researcher and were directly parallel to the self concept of occupational ability scales. Other career development and background measures were obtained through answers to questions relating to socio-economic levels of occupations.

Relationships were analyzed with Pearson Product-moment correlation coefficients. The level of significance for each separate test was $p < .001$. Differences were analyzed by four-way multivariate analysis of variance at the significance level of $p < .05$.

Major Findings

Approximately one-third of the students named a parent as the most significant other person influencing occupational choice. Friends, teachers, work supervisors, and employers were also mentioned frequently.

The theoretical position of the study was partially supported by its findings. Meaningful relationships among scale scores indicated that the student evaluates his occupational ability in the same way he thinks his occupationally significant other does. This was true generally and in the occupation of the student's greatest interest.

Meaningful interrelationships on socio-economic measures indicated that when considering the socio-economic status level of his career potential, the student reflects the evaluation and expectation which he feels his occupationally significant other has for him.

Differences found between academic and occupational students indicated that academic students perceived their occupationally significant others to evaluate their career potentials higher and to expect higher levels of occupational choice of them. Conditioned on this, academic students considered their career potentials to be higher than did occupational students.

Differences were found between male and female students indicating that males perceived their occupationally significant others to evaluate them higher and to expect higher levels of occupational choice from them. Conditioned on this, males considered their career potentials to be higher than did females.

High socio-economic males and females demonstrated great variability on level of perceived other's evaluation of occupational ability and perceived other's expectation of occupational choice. Low socio-economic males and females were found to be quite similar on these two factors.

It was suggested these findings be considered when planning career guidance and occupational training programs in order to enhance the career development process. Also recommended was validation research.

Order No. 71-31,275, 185 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author	Rau	Gerald,	Norman
	(Last name)	(First name)	(Middle name)

Exact Title THE RELATIONSHIP OF OCCUPATIONAL EXPERIENCE AND PROFESSIONAL PREPARATION OF MACHINE-TRADES TEACHERS TO THE ACHIEVEMENT OF MACHINE-TRADES STUDENTS.

Degree granted Ed.D., Date 1971 No. of pages in report 218

Granted by	University of Missouri	Columbia, Missouri
	(Name of institution)	(City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

PURPOSE: The primary purpose of this study was to ascertain the relationship between the occupational experience and professional preparation of machine-trades teachers and the achievement of machine-trades students taught by these teachers. Secondly, an attempt was made to ascertain the relationship of machine-trades students' achievement and the amount of machine-trades industrial experience, academic or professional preparation, and teaching experience of their teachers.

METHODS OF RESEARCH: Data for the study were obtained through a mailed information form involving 46 machine-trades teachers from six states and the achievement test scores of 510 junior machine-trades students who participated in the March, 1970 Ohio Machine Trades Achievement Test Program.

Selected characteristics of teachers were utilized in an attempt to predict student achievement on the Ohio Machine Trades Achievement Test for: (1) the composite related-technical and technical subject matter, (2) related-technical subject matter, and (3) technical subject matter.

Secondly, the teachers' student achievement scores were compared for teachers with: (1) college preparation and trade experience (three to ten years) versus those with trade experience (two to ten years) but little or no college preparation (50 credits or less), and (2) college preparation (degree) and trade experience (three to six and one-half years) versus those with trade experience (21 to 40 years) and little or no college experience (50 credits or less).

TREATMENT OF DATA: Multiple regression analysis encompassing selected teacher characteristics was employed to predict student achievement on the three test segments of the OMTAT. Analysis of variance was utilized to test achievement differences of students who had trades-trained teachers and students who had institutionally-trained teachers with trade experience (1) when the number of years trade experience was held constant, and (2) when there were distinct differences in the number of years trade experience, trades-trained teachers with many years of experience and trades and institutionally-trained teachers with relatively few years of trade experience.

FINDINGS: In Phase One, when utilizing student intelligence as the sole predictor of the criterion variable (student achievement on the three test segments of the OMTAT) produced the following correlation coefficients: .440 for technical subject matter; .539 for related-technical subject matter; .506 for the composite related-technical and technical subject matter. The inclusion of other selected characteristics increased the multiple correlation coefficient very little. Thus a student's native intelligence more than any other factor included in the study, was the vital element in predicting student achievement on each test segment.

In Phase Two, the following comparisons were made with teaching experience held constant. 1. When students of non-degree teachers (21 to 40 years trade experience) were compared with degree teachers' (three to six and one-half years trade experience); students of non-degree teachers exhibited significantly greater achievement scores on: (1) related-technical subject matter, and (2) composite related-technical and technical subject matter. Increase in machine-trades industrial experience was related to greater student achievement on respective test segments.

There was no significant difference between the student achievement scores for the two teacher groups based on technical subject matter. Increase in machine-trades industrial experience beyond minimal level was not related to greater student achievement on technical subject matter.

2. When students of non-degree teachers (two to ten years trade experience) were compared with students of degree teachers (three to ten years trade experience); students of non-degree teachers exhibited significantly greater achievement scores on all three types of subject matter tests. Increase in the number of college credit hours beyond minimal level appears to be unrelated to greater student achievement on respective test segments.

Order No. 71-30,714, 218 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Spaziani (Last name) Richard (First name), Louis (Middle name)

Exact Title THE APPLICATION OF BLOOM'S TAXONOMY TO PROFESSIONAL EDUCATION COMPETENCIES OF SELECTED VOCATIONAL INSTRUCTORS.

Degree granted Ed.D., Date 1972 No. of pages in report 125

Granted by Oregon State University (Name of institution) Corvallis, Oregon (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The Purpose of the Study

The primary purpose of this study was to assist in the structuring of an empirically based vocational teacher preparatory program by determining the hierarchical levels of common professional education competencies needed by community college and secondary school vocational instructors. Several dimensions were considered: personal administration of the test instrument to selected vocational instructors, the application of factor analysis to the professional education competencies and other analyses of data to determine differences in the independence of the two groups, and the formation of behavioral implications to be considered in the development of vocational preparatory curriculum.

The Procedures

The instructor questionnaire used in the study was a survey-type modified for personal administration to respondents, and field tested for validation and practice of application. Prior to the administration of the instrument, a review of Bloom's cognitive taxonomy and its relationship to the study was conducted with each respondent.

Contained within the instrument were 99 professional education competencies in combination with a six point ordinal scale corresponding to the major classifications of Bloom's cognitive taxonomy. Respondents judgmentally assigned the dependent variable to indicate the hierarchical level they considered necessary to accomplish the task in each of the 99 competencies.

Respondents typically represented the specialized instructional areas associated with vocational education programs. The study's sample population was drawn from Oregon's 12 community colleges and 13 randomly selected secondary schools. Using a four factor criteria of teacher effectiveness, school administrators recommended respondents for participation in the study. Data were provided by 47 vocational instructors in each group, for a total of 94 respondents in the selected sample.

The Data

The Median Test was used to conduct 99 two-way classification analyses to determine whether the two independent groups differed significantly in central tendencies, and whether they were drawn from populations with the same median.

Further examination of the data was provided for by the use of two factor analysis techniques known as the Q-Mode and R-Mode. The Q-Mode technique ordered respondents according to the 99 competencies in the study. The R-Mode technique clustered competencies according to the respondents in the study. Primary factors and subfactors were judgmentally determined after the data were analyzed.

Findings

Except in two instances, values generated by the Median Test indicated no significant differences existed between the study groups. The Q-Mode analysis further revealed that community college and secondary school respondents were alike in their responses to the competencies contained in the study. Competencies were clustered under four primary factors and three subfactors. As indicated by the Quantile Distribution of the Domain Levels (Medians), approximately 80 percent of the respondents judged the hierarchical levels of the competencies in the study to be at the Application level and higher. Competencies clustered under Factor II, *Instructional Process*, and Factor IV, *Preparation for Instruction*, were judged by the respondents to have the highest Domain Levels.

Order No. 71-31,114, 125 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Stenson (Last name), Orvis (First name), J. (Middle name)

Exact Title THE EFFECT OF MULTI-TYPE SHORT TERM COUNSELING ON THE VOCATIONAL MATURITY OF MALE TENTH GRADE VOCATIONAL STUDENTS.

Degree granted Ed.d., Date 1971 No. of pages in report 131

Granted by University of Montana (Name of institution) (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose: The purpose of this study was: (1) to investigate the possibility of enhancing the vocational maturity of male tenth grade vocational students through multi-type, short-term counseling; (2) to examine the concept of vocational maturity as it relates to vocational and non-vocational male tenth grade students; and (3) to draw conclusions in relation to the above concepts that can be helpful to counselors who work with vocational students. Underlying the pursuit of the study was the feeling that the most significant guidance services that can be offered to students is the opportunity to enhance their vocational maturity and, consequently, improve their readiness to make vocational decisions for which society calls.

Procedures: The study employed a matched, randomized, experimental-control group, pre-test, post-test design. The entire tenth grade male vocational population at C. M. Russell High School, Great Falls, Montana, was used in the study. Data gathered and hypotheses developed centered on the ability of the counseling model to enhance the vocational maturity of the experimental group as shown by Crites' "Vocational Development Inventory" and the individual components of vocational maturity developed in Gribbons and Lohnes' "Readiness for Vocational Planning Scales." The statistics utilized involved computing mean group pre-test, post-test gain scores and a t-test between experimental and control scores on these mean gain differences.

Conclusions: The cognitively oriented dimensions of vocational maturity of male tenth grade vocational students can be significantly enhanced through multi-type short-term counseling. The affectively oriented dimensions were not all significantly enhanced, and the counseling model was not able to bridge the apparent gap between understanding and verbalizing one's strengths and weaknesses and accurate implementation of these concepts. The subjective phenomenon called the self-concept was not responsive to the counseling model.

Tenth grade male vocational students are not less vocationally mature than other tenth grade male students, and most of them are ready for in-depth career planning activities.

The instruments utilized in the research are appropriate as tools that will specifically identify vocationally immature students and the areas in which precision vocational counseling can be implemented.

Order No. 71-28,070, 131 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Stiegler (Last name), Laird (First name), Bartlett (Middle name)

Exact Title EFFECTS OF EXPLANATORY VERSUS NON-EXPLANATORY FEEDBACK ON A BASIC ELECTRICITY PROGRAM USED IN THE TENTH GRADE.

Degree granted Ed.D., Date 1971 No. of pages in report 162

Granted by Wayne State University (Name of institution) Detroit, Michigan (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The major objective of this study was to determine if explanatory feedback would enable students to make greater achievement gains than non-explanatory feedback. Explanatory feedback was defined as written explanations telling the student why his incorrect choice was wrong and how to obtain the correct answer. Non-explanatory feedback was defined as telling the student his answer was incorrect and asking him to choose an alternate.

In an attempt to overcome some difficulties in earlier studies, a challenging program in basic electricity entitled, *Fundamentals of Electricity* by Owens and Sanborn from the Programed Instruction Division of the Sargent-Welch Scientific Company, was used. The program was photographed on slides and shown to students four at a time by means of four random access carrousel slide projectors.

Forty-eight tenth grade students from Mott High School in Waterford, Michigan participated in the study. The students took a pretest and were assigned a rank based on their score. The ranks were divided into thirds designated as high, medium, and low. The students were randomly assigned to one of the two treatment groups. This resulted in a 2 x 3 (feedback form x ability level) factorial experiment containing repeated measures with eight students per cell. The students took the program form, containing either explanatory or non-explanatory feedback, and then took the posttest which was identical to the pretest. Records were kept on errors and time needed to complete the program.

Separate hypotheses were formulated to determine whether explanatory feedback would be more useful to students in learning concepts or principles in electricity. In order to determine whether test items were testing concepts or principles, a three judge panel was used.

For testing the differences between the two feedback forms, a three-way analysis of variance was used. A t-test was used to check for differences in time to complete the program. The Omega Squared test of correlation was used to determine the strength of the relationship between the independent variables (feedback forms and ability levels) and the dependent variable (achievement gain scores).

The analysis of variance indicated that the differences between the explanatory and non-explanatory forms of feedback for the program were not significant. Examination of the scores within each ability level indicated that the lowest ability explanatory feedback group might have been aided by the explanatory feedback since their mean pre to posttest gain score was seven points greater than the mean pre to posttest gain score of the lowest ability non-explanatory feedback group.

Within the ability levels, the analysis showed that the highest ability group performed significantly better than the other two ability groups. The analysis further revealed that the pre to posttest gains were significant. A significant interaction between the program form and the pre to posttest factors occurred. The major cause of this interaction was performance of the low ability groups such that when the low ability subjects took the program, those students with the largest pre to posttest gains were found to be in the explanatory feedback group.

The Omega Squared test showed that pretest scores explained 71% of the variance. Grouping the achievement scores by pre and posttest accounted for 61% of the variance. The interaction between the program form and the pre to posttest factors explained 61% of the variance.

Analysis of variance revealed that the differences in pre to posttest gains for test items on concepts and principles were not significant. The explanatory feedback groups took more time to complete the program than the non-explanatory feedback groups.

The following principles were derived from the study as possible guides for those persons managing programed materials.

1. Explanatory feedback tends to reduce the number of errors students will make when working through a program.
2. Pretest means and error rate means are good predictors of group success in using the program.
3. Note taking while working through the program increases achievement.
4. The achievement increases occur when students use explanatory feedback and take notes.
5. With difficult challenging programed material, student time spent on the program correlates well with higher achievement.

Order No. 71-29,798, 162 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wilson (Last name) Russell (First name), Charles (Middle name)

Exact Title EFFECTIVENESS OF TEACHING ELECTRICITY TO HIGH SCHOOL STUDENTS BY VARIED CLASS TIME SEQUENCES AND TEACHING MATERIALS.

Degree granted Ed.D., Date 1971 No. of pages in report 124

Granted by The Pennsylvania State University (Name of institution) University Park, Pennsylvania (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The major purpose of this study was to determine the effects of varied time sequences and different teaching materials on student achievement in learning the basic skills and knowledge in applied electricity for the farm and home. Minor purposes were: (1) to determine if there was any relationship between student achievement and selected characteristics possessed by them such as: place of residence, number and type mathematics and science courses completed, involvement in electricity, years enrolled in vocational agriculture, and grade level, and (2) to determine if there was any relationship between student achievement and the following selected characteristics of their teachers: amount of graduate work completed, age and years of teaching experience, involvement in electricity, and inservice education.

Thirty-seven agriculture teachers and 529 senior high school students enrolled in vocational agriculture in 37 schools located in 17 counties in Pennsylvania participated in the teaching experiment. Nineteen teachers used a resource unit, prepared by the writer, to teach the unit in electricity while 18 teachers used a one-page teaching outline.

The criterion measure in this study was a test pertaining to the basic skills and knowledge in applied electricity for the farm and home. The teacher test consisted of 60 multiple choice questions and the student test had 50 multiple choice questions. The test was administered to both students and teachers as a pretest and a posttest.

Correlation was computed to show relationships between all variables in the study. Multiple regression analysis was used to identify the covariates to be used for analysis of covariance. Analysis of variance and covariance were used at the .01 and .05 levels.

The findings of the experiment indicated: (1) there was no significant difference in learning among students taught basic electricity daily from those taught the subject two consecutive days each week by teachers who had completed an inservice education course in basic electricity; (2) students taught basic electricity daily by teachers who had not enrolled in an inservice education course in basic electricity achieved significantly higher mean test scores than students who were taught the subject two consecutive days each week by teachers who had not been enrolled in an inservice education course in basic electricity; (3) mean test scores of students taught by the resource unit method were significantly higher than mean test scores of students taught by the teaching outline method; (4) no significant difference was found in adjusted mean test scores of students taught by teachers who received inservice education in basic electricity and the adjusted mean test scores of students who were taught by teachers who did not receive inservice education in basic electricity; (5) student test scores correlated significantly with the total number of years of science and mathematics courses completed; (6) student achievement was not affected by place of residence, involvement in electricity, years enrolled in vocational agriculture, grade level, amount of graduate work completed by their teachers, years of teaching experience of their teachers, and teacher involvement in electricity; (7) adjusted mean test scores were significantly higher for students who completed a greater number of years of academic mathematics; (8) students taught by teachers 41 or more years of age achieved higher adjusted mean test scores than students taught by teachers in all other age groups except those taught by teachers in the 20 to 25 year age group; (9) teacher knowledge of basic electricity was not affected by the class time sequence used to teach their students, type of teaching materials used, level of inservice education, amount of graduate work completed, age, and years of teaching experience; and (10) teachers and students made significant gains in knowledge of basic electricity from pretest to test.

Order No. 71-28,741, 124 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Witherspoon (Last name), Everette (First name), L. (Middle name)

Exact Title THE PROCESS OF DEVELOPING VOCATIONAL EDUCATIONA CURRICULA IN AREA VOCATIONAL SCHOOLS.

Degree granted Ed.D., Date 1971 No. of pages in report 228

Granted by State University of New York (Name of institution) Buffalo, New York (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose

The purpose of this study was to investigate the process of curriculum development in area vocational schools of the mid-eastern United States to recommend procedures and guidelines for planning, implementing, and evaluating area vocational education curricula.

Method of Research

Data for the study were secured from a universal sample of teachers, directors and/or curriculum coordinators of area vocational-technical schools in the states of New York, New Jersey, and Pennsylvania.

Two questionnaires were constructed for the study. One was designed for area school directors or curriculum coordinators, and one for the vocational and technical teachers. One hundred returns were received from the directors and/or curriculum coordinators which represent 80 percent of those who agreed to take part in the study. There were 259 area school vocational teachers who returned questionnaires.

Summary of the Findings

In stating the problem in the study ten specific questions were asked. Each question dealt with an important aspect of curriculum development. A summary of the response to the questions is reported here.

There are several factors or determinants which influence curriculum decision-making in area vocational schools. The curriculums in area schools are based primarily on local manpower needs. State manpower needs are quite influential, but national manpower needs have very little influence on the planning of area vocational school curricula.

Decisions for curriculum planning also take into account the nature and needs of students, technological changes, and the functions and aims of the school. The Vocational Educational Act of 1963 and the Amendments of 1968 appear to be an important force affecting curriculum decision-making in area vocational and technical schools.

Curriculum planning in area schools seems to be a group effort involving several individuals and groups at various degrees of participation. The teachers are the primary decision-makers in curriculum planning. Occupational advisory committees are involved to a large degree in curriculum decision-making. Pupils and parents are utilized very little in curriculum planning. Curriculum policy making is primarily a function of area school administrators.

In planning new vocational and technical curricula, most of the area school directors or curriculum coordinators determine the need for a program by making a manpower survey. They are usually assisted by an advisory committee, and data provided by the Employment Service is often used for justification of the program.

It usually takes from four to eight months to implement a new vocational program which involves working out all the curriculum details, employment of an instructor, recruiting students and purchasing equipment and supplies.

The specific job training approach is the most widely used curriculum pattern for providing vocational instruction in area schools. The second most widely used approach is the cooperative work experience.

Evaluation of area vocational school curricula is an ongoing process involving school personnel, advisory committees, employers, students, and the general public at various degrees.

The type of course revisions most frequently reported were in manipulative skill requirement, increase in related theory content, increase in the use of reading materials, increase in individual instruction, and changes in major equipment.

As seen by the vocational teachers, they are the principal resource for curriculum revision.

Job placement is the single most important criterion for evaluating area vocational school curricula. The findings of the study indicate that the great majority of graduates who found jobs in the occupation for which trained do not leave the immediate school community. This suggests that if placement of graduates into the field for which trained is to be a major objective, then curriculum planning should be geared to meet local manpower requirements.

An analysis of data revealed that the greater the influence of socio-economical, psychological, and philosophical determinants on curriculum decision making, the greater the placement of graduates into occupations for which trained.

The data also revealed that a greater utilization of lay people from industry and labor, either in an advisory committee or as consultants, tends to increase the job placement percentage of graduates.

Order No. 71-28,819, 228 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS EDUCATION
JOINT RESEARCH COMMITTEE - AIAA & ACIATE

Author Wojcik (Last name), James (First name), Anthony (Middle name)

Exact Title CONCEPTS PERCEIVED TO BE ESSENTIAL TO EFFECTIVE VOCATIONAL EDUCATION IN BUFFALO AREA VOCATIONAL PROGRAMS.

Degree granted Ed.D., Date 1971 No. of pages in report 141

Granted by State University of New York (Name of institution) Buffalo, New York (City State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

The changing demands on vocational education brought upon by an advancing technology appear to indicate that broader concepts and perceptions of the aims and goals of vocational education by those involved in the vocational education process are required. This appears to apply if vocational education is to function effectively and serve the student. Broader roles for vocational educators and a broader scope for the curriculum of the vocational program appear to be needed. This study attempts to give a description of what perceptions and concepts related to vocational education are held by a group of vocational educators in the Erie County, New York area. The purpose of the study was to ascertain what vocational educators and guidance personnel in the Erie County area felt were essential for effective vocational education.

Perceived requirements for effective vocational education were obtained by use of a questionnaire which consisted of a series of 23 items for vocational teachers and administrators and 44 items for guidance counselors. Items on the questionnaires related to aspects of a conception of education which ranged along a continuum from specific to very broad. Specific items related to a very narrow concept which equates education to specific skills training. Other items related to a broader concept of vocational education. Still other items related to the concept of education as equivalent to cultural transferrence and education as a preparation for the world of living. Respondents were asked to indicate whether they Strongly Agreed, Agreed, were Uncertain, Disagreed, and, Strongly Disagreed, with each item. Numerical values ranging from 1 - 5 were assigned to the possible responses. In addition, one item asked for any additional factors the respondent felt were essential to effective vocational education. This open-ended item elicited written statements from the respondents. A personal data form was attached to the questionnaires.

The sample represented the universe of possible vocational high school and area center respondents from the geographical limits of the City of Buffalo and Erie County, New York. The occupational preparations represented by the sample were largely trade occupations. Business and distributive education programs at the secondary school level were not represented. Questionnaires were sent to a total of 227 vocational educators. Of this number, 202 were vocational teachers, 15 were administrators, and 10 were guidance counselors. 60% of the total number in the sample or 185 vocational educators responded by completing the questionnaire.

An analysis of the data indicates that, while there was a lack of polarization around either the narrow and the broad concepts of vocational education, 68% of those responding tended to hold broader perceptions while 32% tended to hold narrower perceptions of vocational education. With reference to questions posed in the study, the data indicated the following: A significant number tended to feel that concepts related to a broader perception of vocational education were essential to effective performance. There was a significant difference in percentages between those holding a broad and those holding a narrow concept of vocational education. No significant difference was found to exist in preference for items relating to a broad or a narrow concept of vocational education among vocational teachers, administrators, and counselors. No significant difference was found to exist between preferences for items relating to the broad or narrow concept of vocational education between respondents who fall within certain age ranges and who have differing tenures of professional experience.

Responses to the open-ended item fell into three broad categories of perceived need: 1.) The need for more modern equipment and related factors; 2.) The need for vocational educators to establish closer liasons with industry; 3.) The need for changes in the quality of curricula, the quality of the vocational educators and counselors, and, the quality of the vocational student.

Order No. 71-28,049, 141 pages.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Abitia (Last name) Freddie (First name), NMI (Middle name)

Exact Title THE DEVELOPMENT AND FIELD TESTING OF A SELF-INSTRUCTIONAL SYSTEM IN INDUSTRIAL DESIGN METHODOLOGY.

Degree Granted Ed.D. Date 1971 No. of pages in report 237

Granted by Washington State University (Name of institution) Pullman, Washington (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To design, develop and field test a self-instructional system designed to teach basic knowledges in industrial design.

Source of Data and Method of Study

The overall design of this study was developed in the evaluative experiment mode, with additional variations to overcome the effects of extraneous contamination. Thus, control and experimental groups were utilized to determine to what extent the subjects performance could be directly attributed to the system per se.

Findings and Conclusions

Analysis of data indicated that students in both the control and experimental groups experienced increase levels of learning which, although different in magnitude, were statistically significant above the 5 percent level using Fisher's t test. More specifically, the control and experimental groups were able to gain 5.5 and 86.5 percent, respectively, of the knowledge to be gained after pretesting.

Findings also tend to cast some doubts on previous studies which have attributed pretest-posttest gains solely to the exposure of subjects to automated instruction.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Alkan, Omer, Cevat
(Last name) (First name) (Middle name)

Exact Title A PROPOSED COOPERATIVE VOCATIONAL EDUCATION PROGRAM FOR TRADE AND INDUSTRIAL OCCUPATIONS IN TURKEY.

Degree granted Ph.D. Date 1969 No. of pages in report 236

Granted by The Ohio State University Columbus, Ohio
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To plan and formulate the basic principles of a cooperative vocational education program for industrial occupations in Turkey.

Source of Data and Method of Study:

1,157 developed questionnaires were distributed to six typical industrial communities in Turkey. Distribution included students, educators, parents and employees. The 714 (62%) responses provided the data for this study.

Findings and Conclusions:

The study culminates in the development of an educational model which identifies Theoretical Foundations, Administrative structure, Instructional system, student body, and facilities for Turkey's educational system. In light of the models developed, several recommendations are made concerning change in the general policies and practices of this system.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Allen (Last name), David (First name), (Middle name)

Exact Title THE HISTORY OF PROFESSIONAL INDUSTRIAL EDUCATION ORGANIZATIONS IN CALIFORNIA

Degree granted Ed.D. Date 1962 No. of pages in report 422

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available; Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

A historical survey of the professional industrial education organizations in California.

Source of Data and Method of Study:

Government Publications; United States government reports; State of California documents, Codes and statutes of California; catalogs, minutes, and records; publications of organizations; dissertations; periodicals; unpublished materials; newspaper articles; letters; and books.

Findings and Conclusions:

The services of the California Industrial Education Association are:
1. It has made the industrial educators aware of their relationship to each other; it has given them someone else to lean upon who also has the same common problems. Through the exchange of ideas it has strengthened their actions.
2. It has encouraged the other disciplines to become aware of industrial education, especially when the association has involved board members, administrators, and superintendents in its meetings and activities. This has led to better cooperation in the teaching profession.
3. It has, by the nature in which it operates, encouraged a better standard of professional ethics, helped eliminate pettiness, and upgraded the effectiveness of instruction through in-service training and the presentation of professional growth opportunities.
4. It has given the industrial education teachers something to belong to and thereby made the teachers realize that they are not "just shop teachers" but rather an integral part of the teaching profession.
5. It has made industrial education teachers aware of the total industrial education programs and has prepared them to participate in the larger aspects of the total educational program in our schools.
6. It has encouraged legislation that has been beneficial for industrial education and has resisted legislation which has been detrimental to industrial education and to education as a whole.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Allen, Willard, Arthur
(Last name) (First name) (Middle name)

Exact Title A STUDY OF PRESENT PRACTICES AND TRENDS IN INDUSTRIAL ARTS TEACHER EDUCATION UNDERGRADUATE LABORATORY COURSES IN TRANSPORTATION, POWER, AND POWER MECHANICS.

Degree granted Ed.D. Date 1963 No. of pages in report 162

Granted by Indiana University Bloomington, Indiana
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To determine the number of institutions now offering laboratory courses in transportation, power, or power mechanics as part of their industrial arts undergraduate teacher education technical sequence.
2. To determine the variety of interest areas included in the existing courses and the possible changes to be made in these existing courses;
3. To ascertain some opinions of selected industrial arts teacher educators toward the development of technical courses in transportation, power, or power mechanics at the teacher education level; and
4. To determine trends and promising practices in course patterns and course content which may help improve present courses or serve as a guide in establishing industrial arts transportation, power, or power mechanics courses in other teacher education institutions.

Source of Data and Method of Study:

Data for this study was obtained by the use of a survey questinnaire sent to industrial arts institutions that offered undergraduate laboratories in the specific areas of transportation, power, or power mechanics.

Findings and Conclusions:

Industrial arts laboratory courses in transportation, power, or power mechanics are based upon content derived from an analysis of the over-all industrial technology in the transportation and power industry. Although fairly recent in concept, there has been a continued growth in the number of industrial arts teacher education institution offering specific undergraduate laboratory courses in transportation, power, or power mechanics since World War II. Present industrial arts undergraduate laboratories in this area are primarily concerned with ths study of internal combustion, engine power and the application of this power. It was implied that, as present courses were further developed attempts would be made to expand the interest areas to include all major forms of power and the application of this power. Student experiences in this subject matter deals primarily with understandings obtained while performing service and maintenance operations on the products of industry rather than the building of a project. Present laboratory courses in transportation, power, or power mechanics were considered flexible and subject to revision and modification as advances are made in the transportation and power industry.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Anderson (Last name), Donald (First name), Norris (Middle name)

Exact Title AN EXPERIMENTAL EVALUATION OF TWO METHODS FOR DEVELOPING CREATIVE PROBLEM SOLVING ABILITIES IN AN INDUSTRIAL ARTS COURSE.

Degree granted Ph.D. Date 1963 No. of pages in report 198

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To evaluate the effects of two procedures designed to develop creative problem solving abilities in general education, college level, industrial arts course. An attempt was made to determine whether (a) the treatments produced different effects (b) the effects of the treatments, if any differed from one intelligence level to another, (c) certain combinations of treatment and level were more effective than others and (d) different treatments produced different effects on final course test scores.

Source of Data and Method of Study:

Three treatments were delineated, using two experimental and one control group of students.

Findings and Conclusions:

Results of the analysis indicated that significant differences in mean scores on the criterion instrument were associated with effects of levels, treatments, and interaction in two of the replications. In the third replication, significant differences were found for the effects of treatments and interaction. In the three replications, the orders of adjusted mean scores associated with levels and interaction were inconsistent. In all three replications the order of adjusted mean creativity test scores favored the experimental group in which a combination of brochures and imagination exercises were used. No significant differences were found among final cover test means of the three treatment groups.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNCIAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Anderson, Edward, Clifton
(Last name) (First name) (Middle name)

Exact Title PROMOTING CAREER INFORMATION-SEEKING THROUGH GROUP COUNSELOR'S CUES AND REINFORCEMENTS.

Degree granted Ph.D. Date 1970 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This investigation explored the differential effects of two theoretically based independent variables: cues and reinforcements upon information-seeking activities.

Source of Data and Method of Study:

Questions by the group counselor which asked the counselee about his attempts and intents to seek career information were used as cues, and positive verbal statements by the counselors were used as reinforcements. The experimental sample was comprised of sixty male veterans of the United States Armed Services. These veterans were concurrently enrolled in University Extension - UCLA's Veterans Special Education Program, a college preparatory program for veterans not eligible for college or university admission.

Findings and Conclusions:

The results indicate that cues were more effective than no cues on two of the dependent measures and on the Self-Evaluation of Career-Development Scale, while reinforcement versus no reinforcement failed to show significant differences on any of the dependent measures. None of the instruments used to measure the three mediating variables seemed capable of identifying individuals who would score high or low on the dependent measures; however, those who scored high on the need for social approval did attend more counseling sessions than the low scorers. Testing treatment mean differences, the groups which received both cues and reinforcements demonstrated greatest effectiveness. Furthermore, treatments using cues were shown to be more effective than treatments wherein reinforcement was the independent variable. Differences between the treatment and control groups were evident on the guided interview, and the Self-Evaluation of Career-Development Scale.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Bailey, Donald, Allen
(Last name) (First name) (Middle name)

Exact Title A FOLLOW-UP STUDY OF THE VOCATIONAL-INDUSTRIAL TEACHER CERTIFICATION SUMMER WORKSHOP PROGRAMS (1965-1969) AT THE UNIVERSITY OF MARYLAND.

Degree granted Ed.D. Date 1970 No. of pages in report 221

Granted by University of Maryland College Park, Maryland
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to evaluate the Vocational-Industrial Teacher Certification Summer Workshop Programs at the University of Maryland.

Source of Data and Method of Study:

The method of this study was to follow-up the participants of the five (1965-1969) Vocational-Industrial Teacher Certification Summer Workshops and to obtain and analyze their evaluative statements on this program.

Findings and Conclusions:

The study provided information on pedagogical rating, teacher retention, teacher mobility, professional growth, and the social aspect of the summer workshop programs.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION

JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Baldwin (Last name), Thomas (First name), Richard (Middle name)

Exact Title PREPARATION OF COLLEGE TEACHERS IN SELECTED DOCTORAL PROGRAMS.

Degree granted Ed.D. Date 1971 No. of pages in report 105

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfiche (x) E.R.I.C. (x)

Purpose of Study

This research was undertaken to determine: (1) what is now being done in selected doctoral programs to prepare graduates for college teaching positions, (2) what has been done in the past, and (3) how the people involved in these programs as students and directors feel that the programs might be made more beneficial to future candidates.

Source of Data and Method of Study

Information forms were used to gather the data from the three selected populations. The participants were department chairmen from the departments of chemistry, economics, education, engineering, English, mathematics, and philosophy, selected faculty members from these departments, and students of randomly selected faculty members.

Findings and Conclusions

The information gathered from these three forms was used to test four null hypotheses, each in turn being rejected when subjected to a chi square analysis of the related information. From these analysis a number of conclusions were drawn:

1. There is considerable variation in the preparation provided for doctoral students both between departments and within schools.

2. Only 24.7 percent of the departments provided any formal preparation for college teaching in their programs, and 64 percent of these were in the departments of English and education.

3. The doctoral degree is considered a "union card" for college teachers by 80 percent of the departments and 81.6 percent of the faculty respondents.

4. Seventy-three percent of the people surveyed found their first job after completing the doctoral degree in college teaching, though this seemed to be the least important aspect of training to many of the departments contacted.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Basseri (Last name), Jamshid (First name), ______ (Middle name)

Exact Title A DESIGN FOR COOPERATIVE MERCHANDISING MID-MANAGEMENT TRAINING IN THE CALIFORNIA PUBLIC COMMUNITY COLLEGE.

Degree granted Ed.D. Date 1970 No. of pages in report ______

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

An attempt to prove that mid-management training can very well be given in the community college.

Source of Data and Method of Study:

Literature of the field was surveyed to identify critical needs in Cooperative Merchandising Mid-Management Training. This information was used to develop an "inquiry form" which embodied what is believed to be "the job requirements" of a merchandising mid-managerial position. Through structured interviews with (a) the executive personnel in merchandising establishments who supervise mid-managers, and (b) mid-managers who occupy such merchandising positions and who may have received similar cooperative education in the community college, the propriety of these requirements, and whether they should be taught by the college or the cooperating firm were verified.

Findings and Conclusions:

A suggested curriculum, course outlines, and other supporting forms based on the identified requirements were prepared. Subsequent to that, selected colleges were visited to establish the validity of the suggested curriculum, and course outlines. In general, respondents were quite satisfied with the Program. The suggested curriculum, course outlines, and other information compiled in the course of the study constituted the basis of a "Design for Cooperative Merchandising Mid-Managemen Training in the California Public Community College."

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA ACIATE - NAITTE

Author Bates, Ivan, W.
(Last name) (First name) (Middle name)

Exact Title THE RELATIONSHIP OF FORMAL EDUCATION TO ACADEMIC ACHIEVEMENT AND FLIGHT PERFORMANCE IN A TECHNICAL AVIATOR TRAINING PROGRAM.

Degree Granted Ph.D., Date 1971, No. of pages in report 84

Granted by Florida State University Tallahassee, Florida
(name of institution) (City, State)

Where Available. Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The objective of this research was to determine if academic achievement and flight performance in a technical aviator training program was related to level of formal education, age, and score attained on the U.S. Army Flight Aptitude Selection Test.

Source of Data and Method of Study

U.S. Army aviator trainees (fixed wing) were analyzed with the sample being limited to those graduating from one school during 1970. The Flight Aptitude Selection Test developed by the Army was studied and compared with educational levels and age to determine applicability for civilian flight training institution. Data analysis utilized computer program BMD 03R Multiple Regression with Case Combinations.

Findings and Conclusions

The data concerning the level of formal education and age indicated that they are significantly related to the academic achievement. The same variables were not statistically significant to flight performance in aviator training. The Flight Aptitude Selection Test was significant to both academic achievement and flight performance.

The study also produced recommendations for further research. Some were: An aptitude selectiontest should be developed and validated for use in technical aviation programs. That existing research be reviewed to establish priorities and direction for further research studies should be conducted of older age groups to compare achievement and performance.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Bjorkquist (Last name), David (First name), Carl (Middle name)

Exact Title DISCRIMINATION TRANSFER FROM SCALE MODELS AND PICTORIAL DRAWINGS IN LEARNING ORTHOGRAPHIC PROJECTION.

Degree granted Ph.D. Date 1965 No. of pages in report 209

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine the relative effectiveness of scale models and pictorial drawings in helping beginning mechanical drawing students to learn some principles of orthographic projection.

Source of Data and Method of Study:

An experiment was conducted in which discriminations involving orthographic projection were solved by subjects under three experimental treatments in a learning task followed by a transfer task which was the same for all subjects.

Subjects were 60 sixth grade boys randomly selected from four elementary schools in the Minneapolis Public Schools.

Findings and Conclusions:

It was concluded that pictorial drawings were more effective than scale models or no aids in helping beginning students to learn some principles of orthographic projection. Also, the treatment group having the easier learning task did perform best on the difficult transfer task.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Blomgren, Roger, Dean
(Last name) (First name) (Middle name)

Exact Title AN EXPERIMENTAL STUDY TO DETERMINE THE RELATIVE GROWTH OF A SELECTED GROUP OF INDUSTRIAL ARTS EDUCATION MAJORS TOWARD GAINING AN UNDERSTANDING OF AMERICAN INDUSTRY.

Degree granted Ed.D. Date 1962 No. of pages in report 234

Granted by University of Illinois Urbana, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To obtain research evidence regarding the relative standing of freshmen and senior college level industrial arts education students in gaining understanding of American industry.

Source of Data and Method of Study:

Two groups of social science majors, one freshmen and one senior, were used as comparison groups. The relative gain of understanding American industry was determined by comparing the achievement scores made by the four groups on a test developed for the study. The test was given to the four study groups; 38 freshmen industrial arts majors, 36 senior industrial arts majors, 50 freshmen social science majors, and 27 senior social science majors.

Findings and Conclusions:

1. The freshmen industrial arts students bring to college a lower level of understanding of industrial America than do the non-industrial arts student of this study. This deficiency is not as pronounced in the area of industrial management and the technology of production as it is in the history of industry and labor and labor organizations.
2. The senior college industrial arts students show a higher level of understanding industry than do the freshmen industrial arts students. This gain is in all areas identified in this study; history, labor, management, and technology.
3. The non-industrial arts senior of this study did not show a greater understanding of all phases of American industry when compared with the industrial arts senior. The industrial arts senior was equal to the non-industrial arts senior in understanding the history, management, and technology of industrial America. The industrial arts seniors were comparatively low in their understanding of labor in industry.
4. Students enter college programs of industrial arts education with a lower level of understanding of Industrial America when compared with entering social science students. However, if we could assume that the seniors came as freshmen from the same population as the freshmen in this study it would appear, because of their interest or educational preparation during their four years in college they gain as great an understanding of industry as the social science majors.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Boaz (Last name), Holland (First name), E. (Middle name)

Exact Title DEGREE-LEVEL TECHNOLOGY PROGRAMS OFFERED IN INDUSTRIAL EDUCATION DEPARTMENTS: THEIR STATUS, ACCREDITATION, AND ACCEPTANCE.

Degree granted Ed.D. Date 1965 No. of pages in report

Granted by University of Missouri (Name of Institution) Columbia, Missouri (City, State)

Where Available: MICROFILM ( ) MICROFICHE ( ) E.R.I.C. ( )

Purpose of Study:

The purposes of this study were to ascertain the status of four-year technology programs with respect to their organizational structure, the backgrounds, training, employment and success of their graduates, and to ascertain the extent of accreditation and acceptance of these programs.

Source of Data and Method of Study:

Data were obtained from college and university catalogs, departmental publications, the Annual Report of the Engineers' Council for Professional Development, and information forms sent to 54 technology program supervisors, 219 technology graduates, and 177 employers of these graduates.

Findings and Conclusions:

1. The four-year technology programs are meeting student and industrial needs and will continue to grow if the necessary publicity and effective counseling is done.
2. Future four-year technology enrollees will probably come from small towns and large cities, attend small and large city schools and have fathers who are professional and managerial workers, craftsmen, foremen, and farmers.
3. Along with placement and follow-up of technology graduates, industries need to be indoctrinated more fully regarding the role of the technology graduate.
4. Technology graduates were successful on their jobs as indicated by salaries, job satisfaction, and high employer ratings.
5. Some action toward accreditation of the four-year technology programs should be taken.
6. The four-year technology programs seem to have been moderately well accepted by the institutions in which they are offered, the graduates, and their employers.

SOURCE SHEET FOR SUMMAREIS OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATICN
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Bowdoin (Last name), Paul (First name), ________ (Middle name)

Exact Title AN ASSESSMENT OF THE EDUCATIONAL AND EXPERIENCE QUALIFICATIONS OF ADMINISTRATIVE AND SUPERVISORY PERSONNEL FOR VOCATIONAL INDUSTRIAL EDUCATION IN FLORIDA.

Degree granted Ed.D. Date 1966 No. of pages in report ________

Granted by Florida State University (Name of Institution) Tallahassee, Florida (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine whether the required and actual qualifications of the administrators and supervisors responsible for trade and industrial education are those that are needed, and if they are not, what improvements should be made.

Source of Data and Method of Study:

A jury of twenty persons was selected from the national population of leadership personnel in Vocational Education. Judgments were obtained by questionnaire and two models were constructed for two levels of administrator-supervisors. Qualifications of incumbents were identified by examining State Certification files. Judgments of incumbents were obtained by questionnaire. Comparisons were drawn among medians of above data as the basis for the appraisals.

Findings and Conclusions:

Qualifications for two categories, local directors, system-wide supervisors, and principals of trade and industrial education programs (Category I) and program coordinator-supervisors (Category II) and the comparisons used revealed how well the members of each category fulfilled the qualifications.

The greatest discrepancy was between the recommended preparation and reality. In-service training programs are needed to overcome this discrepency.

State certification regulations should be modified and provide for provisional certification of persons with limited deficiencies.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Brantner (Last name), Seymour (First name), Thomas (Middle name)

Exact Title AN APPRAISAL OF SELECTED COURSES OF THE VOCATIONAL TRADE AND INDUSTRIAL TEACHER EDUCATION CURRICULUM IN PENNSYLVANIA

Degree granted Ed.D. Date 1962 No. of pages in report 196

Granted by University of Pittsburgh (Name of Institution) Pittsburgh, Pennsylvania (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine whether vocational trade and industrial shop teacher education in Pennsylvania does provide for professional competency.

Source of Data and Method of Study:

All of the trade and industrial shop teachers certified between 1938 and 1959 who are teaching in the public schools of Pennsylvania were asked to express their attitude on the adequacy of the instruction received in the eight required courses. The data were obtained by use of a check-list which was validated by analyses of course syllabi, by the teacher educators serving as a jury of experts, and by inclusion of knowledges and abilities verified as essential to successful teaching by previous researchers. Reliability of the check-list was established by split-half correlation of the even and odd numbered returned questionnaires from the teachers and by correlated the responses from the vocational administrators with those of the entire teaching group.

Findings and Conclusions:

A majority of the teachers rated the instruction they had received as adequate on 175 of the knowledges and abilities. There was a significant relationship between the attitudes of the vocational administrators and teachers in rating the competency of application was evidenced. It was concluded that competency in the arts and sciences of teaching is dependent upon the instruction received by the teacher.

A majority of the trade and industrial teachers, administrators, and teacher educators endorsed 180 of the knowledges and abilities as necessary in the preparatory teacher education curriculum. It was established that there is a relationship between adequacy of instruction, competency of application, and necessity in teacher education in the attitudes expressed by the three groups comprising the study population.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Brinkman (Last name), Fred (First name), John (Middle name)

Exact Title ANALYSIS OF THE CHARACTERISTICS OF SELECTED VOCATIONAL STUDENTS WITH IMPLICATIONS FOR GUIDANCE AND COUNSELING.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C.. ( )

Purpose of Study:

To conduct an analysis of the characteristics of selected vocational students with implications for guidance and counseling. The major emphasis was that of determining certain characteristics of the student population enrolled in evening programs of the community college and, through an analysis of these characteristics, to assess the implications they may have for guidance and counseling.

Source of Data and Method of Study:

The impetus for this investigation was provided by an extensive review of the literature, covering both occupational education and guidance and couseling, discussions with colleagues in the community college, and earlier studies. Use of a survey instrument constituted the basic method of gathering data. The procedure utilized included a review of the literature, development of an original survey instrument which would elicit individual student responses, administration of the instrument to evening division students, and an analysis of the data derived from the student response to the questionnaire. The survey instrument was completed by 6,147 evening students. It was tabulated by three major fields of concentration, by college-wide totals, and by ethnic background.

Findings and Conclusions:

Pertinent findings of the study included the fact that nearly two thirds of the evening students had enrolled in evening educational programs because they anticipated a direct benefit either to present or future employment. Approximately three fourths of the evening students were pursuing an educational program related to career development. Over 70 percent expected to obtain employment or job advancement as a result of completing the class in which they were enrolled. Respondents indicated that the overwhelming influence in their original choice of a vocation had been the available job opportunities, with the influence of school teachers, principals, and counselors almost negligible in this respect. Less than 10 percent of the respondents had not graduated from high school; 43 percent had previously completed some college work and 10 percent had received college degrees. Slightly more than one half of the students planned to graduate from the community college, while approximately one-fifth were uncertain of their educational plans.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Broe, John, Richard
(Last name) (First name) (Middle name)

Exact Title PREDICTION OF SUCCESS IN TRAINING AMONG ELECTRONICS TECHNICIANS.

Degree granted Ph.D. Date 1962 No. of pages in report 234

Granted by University of Southern California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To analyze the influence of fifty predictor variables on the success in training of electronics technicians.

Source of Data and Method of Study:

Data were collected on a total sample of 176 training technicians enrolled in full-time day programs in three large Southern California junior colleges. Approximately one third of the total sample were enrolled in the first semester of training, another third in the second semester, and the remaining third in the last, or second, year of training. Test instruments, a questionnaire, and interviews were used to collect data.

Findings and Conclusions:

The results generally support the conclusion that there are a large number of trainee characteristics which, used in combination, relate significantly with earned success in training at all levels. Conversely, there is sufficient evidence available to conclude that there is no single characteristic which, in itself, predicts training success well. Generally, the best prediction of future success occurs at the earliest levels of training, but these characteristics are not likely to be the ones which will be significant at the later levels. Measures of characteristics of motivation, personal history factors, and personality indices show promise of adding significantly to the prediction of success in training of electronics technicians, that is, if used in combination with aptitude measures.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Cambria, Sophia, T.
(Last name) (First name) (Middle name)

Exact Title

Degree Granted Date 1945 No. of pages in report 271

Granted by Bryn Mawr College Bryn Mawr, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To analyze the employment problems of youth in the Philadelphia labor market, focusing specifically upon the area of vocational services for youth--vocational guidance, vocational education, and placement and to offer some practical recommendations.

Source of Data and Method of Study

The sample study, to determine the extent of vocational adjustment and the need for vocational service, is specifically based upon a sample of Philadelphia working youths who were placed on jobs by the North Philadelphia Office of the Junior Employment Service of the School District of Philadelphia between January 1 and October 31, 1941.

Findings and Conclusions

The major findings from this particular sample are as follows: It is found that the larger proportion of the youth are adjusted to their employment. The character of the youth's past education is one of the contributing factors; the youths who remained in high school to graduate are better adjusted than the youths who withdrew prior to graduation. The individual who took the vocational course in high school made a better adjustment than one who selected academic courses. In addition, the young worker who has prepared (through education and training) for the occupation in which he is currently employed tends to derive relatively more satisfaction from the job. The factors which seem to have a positive relation to vocational adjustment include the skill classification of the occupation, wages, the family's attitude toward the job, and the youth's stated need for further vocational service. The finding indicates that success on the job as rated by the employer has only a slight, unreliable relationship to satisfaction as evaluated by the youth.

SOURCE SHEET FOR SUMMAREIS OF STUDIES IN INDUSTRIAL ARTS.
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Campbell (Last name), Clifton (First name), Paul (Middle name)

Exact Title AN ANALYSIS OF NUMERICAL CONTROL, TO IDENTIFY AND DESCRIBE ITS ELEMENTS.

Degree granted Ed.D. Date 1971 No. of pages in report 467

Granted by University of Maryland (Name of Institution) College Park, Maryland (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To develop an organized body of descriptive data concerned with numerical control. These data have value to industry and education, as well as to the development of general understandings about numerical control technology.

Source of Data and Method of Study:

A tentative list of the elements of numerical control (N/C) was compiled from a content analysis of books directly related to the area of N/C technology. A tentative list of the sub-elements which would form the content of each element of N/C was obtained through an analysis of the literature. Consultants provided information and recommendations which aided in the identification of the elements and sub-elements of N/C. Categories into which the elements could be placed were determined through a review of the literature of N/C technology and interviews with the consultants. These categories provided the organization for grouping the elements to facilitate their description. A data gathering instrument was developed and submitted to experienced professionals in the field of N/C technology, participating as jury members, to ascertain their judgments on the elements and sub-elements of N/C and the categories into which they placed each element. Data derived from the instrument provided evidence that the jury members were in substantial agreement that all elements identified were elements of N/C. The jury members were also in substantial agreement concerning the categories into which the elements of N/C could be appropriately placed. From these data, an outline was developed to provide organization for grouping the elements and to facilitate their description. Each of the elements was then completely described under the category into which it was placed.

Findings and Conclusions:

1. The elements of numerical control were:
    Input Media
    Positioning System
    Tape Preparation Equipment
    Computer-Assisted Programming
    Feedback Systems
    Tape Standardization
    Manual Programming
    Servomechanisms
    Coding System
    Measuring System
    Machine Control Unit
    Operational Device

2. The categories of numerical control elements were:
    Input
    Processing (Control system)
    Programming
    Controlled equipment (machine)

3. The elements of N/C could be appropriately described through an organized body of data.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Campion, Howard, Arthur
(last name) (First name) (Middle name)

Exact Title AN EXPERIMENTAL DETERMINATION OF CRITERIA FOR THE ESTABLISHMENT OF NEW VOCATIONAL COURSES.

Degree Granted Ed.D., Date 1941 No. of pages in report

Granted by University of Southern California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm (X) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To establish a set of items or criteria which may serve as a check on or a measure of the advisability of adding an instructional program in a designated occupation field to the list of offerings of a vocational school or a vocational department in a secondary school of the public school system.

Source of Data and Method of Study

Administrators of vocational education in fifty cities were asked to report their experience in initiating new vocational courses and to list all conditions, situations attitudes, and other items that were given consideration in the process. These reports were consolidated by a committee of five experts, and the combined list of items was submitted to two hundred vocational administrators for criticism and for rating according to relative worth. The committee of five experts used the consensus to formulate the tentative list of criteria and then design a check sheet.

Findings and Conclusions

The criteria of desirability of a new vocational course and their relative importance or weight are as follows: (1) Economic Opportunities, (2) Social Considerations, (3) Organization of Instruction, (4) Administrative Problems, (5) Special Group Benefits.

The set of criteria and the check sheet or rating scale as established through this study may be relied upon as an aid in making administrative decisions. The weighted score resulting from the application of the check sheet apparently distinguishes between vocation courses that are or will be effective and those that are or will be ineffective. The school administrator will find that opinions of employers, labor leaders, vocational experts, and others, as expressed through the use of the criteria check sheet, will be of value in formulating his decisions and supporting his recommendations to the governing body of the school district.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - NAITTE - ACIATE

Author Carlsen, Darvey, Ernest
(Last name) (First name) (Middle name)

Exact Title GRAPHIC ARTS PROGRAMS FOR COLLEGES PREPARING INDUSTRIAL ARTS TEACHERS.

Degree Granted Ed.D., Date 1961 No. of pages in report

Granted by University of Southern California Los Angeles, California
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The study was designed to investigate existing college technical curricula for prospective graphic arts teachers , the relationship of college programs to practices in industriy, and the recommendations concerning college programs by leaders in education and industry.

Source of Data and Method of Study

Parallel questionnaires were distributed to 83 professors in colleges which prepare graphic arts teachers and to 90 selected leaders in the graphic arts industry. Specific areas of inquiry were (1) manipulative activities, (2) informational topics, (3) equipment appropriate for instruction, and (4) the place of work experience in the preparation of graphic arts teachers.

Findings and Conclusions

(1) College programs designed to prepare graphic arts teachers are most likely to meet the criteria established for this study when at least one full-time professor teaches graphic arts, when the equipment recommended here is available for instruction, and when students are offered a concentration of work in graphic arts, (2) Colleges with a small enrollment have a serious problem in providing equipment facilities and course offerings adequate for the preparatioon of graphic arts teachers. (3) A general course in graphic arts in desirable for all industrial arts majors. (4) Deficiencies noted in programs in colleges which employ a full time graphic arts professor parallel a lack of appropriate equipment to implement instruction. (5) College programs in graphic arts could be strengthened by placing greater emphasis on certain topics of related information.

Recommendations. (1) Those responsible for improving standards of graphic arts instruction in teacher training institutions should take into consideration the criteria established in this study. (2) Primary efforts in improving graphic arts information, and equipment facilities which received strong endorsement here but were found infrequently in today's college programs. (3) Work experience is recommended for prospective graphic arts teachers. (4) The International Graphic Arts Education Association should serve as a coordinating center to provide information and to promote work experience opportunities for prospective graphic arts teachers.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA ACIATE - NAITTE

Author Cauley (Last name), Michael (First name) Jon (Middle name)

Exact Title INDUSTRIAL ARTS AND ENVIRONMENTAL EDUCATION: ENVIRONMENTAL CONCEPTS JUDGED APPLICABLE TO INDUSTRIAL ARTS TEACHING AREAS BY INDUSTRIAL ARTS TEACHER EDUCATORS

Degree granted Ed. D Date No. of pages 141

Granted by University of Northern Colorado (Name of Institution), Greeley, Colorado (City, State)

Where Available Microfilm (x) Microfiche ( ) E.R.I.C. (x)

Purpose of Study

The purpose of this study was to develop a concrete relationship between industrial arts and environmental education. An overall attempt was made to identify which environmental education concepts should be taught in industrial arts as a subject matter area and more specifically which environmental concepts should be taught in the various teaching areas within the traditional industrial arts programs.

Source of Data and Method of Study:

A list of environmental concepts originally prepared by Robert Earl Roth in a doctoral study completed in 1969 formed the basis for this study. This list of concepts numbering 111 was sent to a jury of 7 qualified persons in the area of industrial arts. These jury members were asked to select those of the 111 concepts to which industrial arts could make the greatest contribution. A narrowed list of concepts resulted.

The narrowed list was then sent to an identified population of industrial arts teacher educators who were specialists in specific teaching areas and met certain specified qualifications. This population was asked to categorize each of the environmental concepts in the narrowed list of 53 into one of three possiblities: applicable to my teaching area, applicable to industrial arts, but not to my teaching area or not applicable to industrial arts. Of the 673 concept lists mailed, 387 were returned with 313 of those having sufficient information to be included in the study.

Findings and Conclusions:

It was found from the analysis and interpretation of the figures from the industrial arts teacher educators that all of the environmental concepts were considered applicable to the industrial arts teaching areas at the 66 per cent level of agreement except one. More specifically it was found that the industrial arts teacher educators could identify which environmental concepts should be taught in the various identified teaching areas in industrial arts.

It can be concluded that there is a concrete relationship between industrial arts and environmental education. A second conclusion is that the concepts used in this study should be included in the traditional industrial arts teacher educator programs and would be best suited to the total subject area in distinct teaching areas within the whole of the industrial arts program. Indications were that all but one of the teaching areas, electronics, should teach from two to twenty-five of the environmental concepts. This further indicated that there is a part for industrial arts to play in the educational process dealing with man's relationship with his natural and man-made surroundings.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Clabaugh, Richard, Delmar
(Last name) (First name) (Middle name)

Exact Title THE ROLE PERCEPTION OF FACULTY MEMBERS IN POSTSECONDARY SCHOOLS OFFERING OCCUPATIONAL EDUCATION.

Degree granted Ed.D. Date 1971 No. of pages in report 196

Granted by Texas A&M University College Station, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. (x)

Purpose of Study

The purpose of this study was to determine how faculty members in post-secondary schools offering occupational education perceived their roles. The information provided supportive data for implementing a comprehensive occupational education program from kindergarten through the fourteenth year in Wyoming.

Source of Data and Method of Study

With the assistance of a panel of review, a data gathering instrument was devised to collect personal information and to record the individual opinions of the repondents. A pilot study was conducted and the opinionnaire was further refined and edited. The survey included all of the full-time and part-time faculty members in the seven community colleges and two technical institutes in Wyoming. The information was compiled on an IBM 407 Accounting Machine and comparisons were made with the collected data.

Findings and Conclusions

1. Faculty members indicated a meager understanding or agreement in the objectives and purposes of adult education.
2. The content of occupational education courses should be directed toward developing salable skills.
3. Public financial support for superior students should generally end upon completion of the secondary school.
4. Most faculty members request supplies and equipment for their educational value.
5. A well-informed faculty was deemed necessary for making effective policy changes
6. Federal financial grants should be awarded with fewer restrictions as to the use of funds.
7. There seems to be a degree of reluctance among faculty members to extend wholehearted confidence in the younger generation.
8. Most faculty members avoid any form of student quidance beyond the traditionally limited areas of academics.
9. The amount of authority that should be granted to a person occupying a supervisory position would be limited to making recommendations.
10. The most desirable attribute of a supervisor is reliable judgment.
11. Faculty members did not wish to become involved in minimizing the costs of education to students.
12. Administrators should be excluded from membership in local faculty organizations
13. There were only slight differences in the perception of role relative to age, sex, years of teaching, or years in present positions.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Clendenning, Lee, Roy
(Last name) ((First name) (Middle name)

Exact Title THE PERFORMANCE OF ADOLESCENT BOYS ON SELECTED PERCEPTUAL MOTOR TASKS SAMPLING ABILITIES RELATED TO MANIPULATIVE PERFORMANCE IN INDUSTRIAL EDUCATION.

Degree granted Ph.D. Date 1972 No. of pages in report 109

Granted by University of Illinois at Urbana-Champaign Urbana, Illinois
(Name of institution) (City, State)

Where Available. Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of the study was to describe the distribution and interrelationships of performance of adolescents on a number of diverse manipulative tasks and to explore possible distributional and interrelational differences among adolescents within different chronological age ranges.

Scource of Data and Method of Study

The tasks sampled the abilities of two hand coordination, discrimination reaction tim speed of hand motion, total response time, hand motion steadiness, and finger dexterity. Chronological age, general intelligence, and grip strength were explored for possible relations with the performances. Subjects (N=104) were from twelve and one half to sixteen and one half years old. Techniques included analyses of differences between distributions, simple and multivariate correlational methods and factor structure.

Findings and Conclusions

Hand grip strength and two hand coordination were very positively skewed with respect to the normal distribution, suggesting a minimum level of achievement by the adolescent population with possibility of significant imporvement with increasing maturity or practice. There were relatively strong intercorrelations among age, grip, two hand coordination and Purdue Peg Board (both hand assembly) scores. Theoretical performance factors identified for the total adolescent sample were: Large Muscle Arm-Hand Coordination, Hand Motion Steadiness, Discrimination Reaction Time, and Speed of Hand Motion. Except for Hand Motion Steadiness, these factors were also identified within sub-divisions of the sample representing early, middle and late adolescence. The adolescent gains in Large Muscle Hand-Arm Coordination with increasing age even when the task requires little physical strength.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE- NAITTE

Author Cleveland, John, M.
(Last name) (First name) (Middle name)

Exact Title THE UNCERTAIN YEARS OR THE CASE FOR GUIDANCE.

Degree granted Ed.D. Date 1961 NO. of pages in report

Granted by University of Pennsylvania PHiladelphia, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to write a book in fictional form which would explain and emphasize the concept and philosophy of guidance,

Source of Data and Method of Study

The story was told basically as a biography, and it studied the growth and development of a young teacher and those happenings which influenced him most. The childhoo and youth of this teacher were examined in some detail in order to show where guidance could have been of assistance to him and to illustrate how these early experiences served as a background for his later feelings and beliefs.

Findings and Conclusions

This book was not written for any particular group, but it was hoped that it would be of interest and value to young people considering a career in teaching, classes in education, parents, and teachers. Most important, however, is that the increasing significant field of guidance be understood and appreciated so that its effectiveness may grow and boys and girls throughout the country may benefit.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Cohen (Last name), Chester (First name), G. (Middle name)

Exact Title ADMISSION OF ADULTS WITH LOW JOB PLACEMENT POTENTIAL INTO PUBLIC SCHOOL VOCATIONAL EDUCATION COURSES: AN OPINION STUDY.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To show whether lenient or restrictive student selection procedures for public school adult vocational education courses are favored by groups who are concerned with the availability of public school adult vocational education.

Source of Data and Method of Study:

An opinion survey instrument was developed, consisting of ten case descriptions of adults seeking admission into full-time vocational courses despite specific handicaps which would typically make their job placement after training doubtful. The survey was conducted by personal contact with respondents. Respondents indicated whether or not they would admit each case subject to the training course.

Findings and Conclusions:

The main conclusion was that general opinion favors an admission policy in adult vocational education which gives adults with low job placement potential access to training in the occupation of their choice, with optimism that they will later find opportunity to make vocational use of their skills. It was concluded that the model furnished by federal manpower development programs, in which prospective enrollees are accepted or rejected by a professional interviewer in accordance with the judged likelihood that they will be able to find training-related employment later, was not favored for general application to public school adult vocational education. Implications of a lenient admission policy for cost-effectiveness, curriculum, and counseling in adult vocational education are discussed.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Coleman, Jay, Mario

Exact Title THE CURRENT STATUS AND POSSIBLE TRENDS IN TEACHING INDUSTRIAL ARTS WOOD INFORMATION AT TEACHER EDUCATION INSTITUTIONS.

Degree granted Ed.D. Date 1971 No. of pages in report 113

Granted by University of Northern Colorado (Name of Institution) Greeley, Colorado 80631 (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was twofold: first to investigate the present status of the wood area in selected teacher education institutions, and second, to discover possible trends which might be useful in improving the college wood programs.

Source of Data and Method of Study:

The descriptive method of research was used in this study. A questionnaire was formulated which secured data regarding the present status and possible trends in teaching the wood area of teacher education institutions. The data were received from college wood instructors whose programs were concerned with teacher education an had a major emphasis in the wood area.

Findings and Conclusions:

1. A majority of college wood instructors should be capable teachers because of their years of experience in Wood related industry, their teaching experiences in public schools, and their advanced degrees (approximately one-third held the doctors degree).

2. Cabinet making or furniture construction was the course offered more than any other type of wood instruction. Wood technology is increasing in popularity as a major course offering. Mass production techniques, wood occupations, patternmaking, period furniture, and upholstery were not major course offerings in the present college wood curriculum.

3. The traditional college wood project will continue to be used as a vehicle of instruction, but its learning experience should be changed to make the classwork more relevant.

4. The teaching techniques most instructors would use if establishing a new wood program would be audio-visual aids, student experimentation, individual instruction, and student research.

5. The innovative programs will have an effect upon the present wood curriculum because they are bringing about a more relevant approach of presenting the wood industry.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Collins, Charles, J.
(Last name) (First name) (Middle name)

Exact Title STUDY OF INDUSTRIAL ARTS EDUCATION IN PUBLIC SECONDARY SCHOOLS OF THE SOUTHERN APPALACHIAN REGION.

Degree granted ______ Date 1968 No. of pages in report 16

Granted by West Virginia University Morgantown, West Virginia
(Name of Institution) (City, State)

Where Avialable: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To compare the Schmitt and Pelley Study of 1966 with a universe study of Southern Appalachia.

Source of Data and Method of Study:

The Schmitt-Pelley instrument was used and sent to every secondary school in the region. A follow-up validation and evaluation of returns consisted of a 10% on-site visitation.

Findings and Conclusions:

Schmitt's findings were validated and the region showed even greater reluctance to change. Where Schmitt indicated the nation was 10-20 years behind in measuring up to a recommended program, the region was on an average 5 years behind the nation. The problems identified by Schmitt were identical with those in the region only "more so." The findings were predictable from the Schmitt study. However, where his was a 10% sample and subject to some error, this was a universe study with validation through personal visitation on-site, thereby validating the Schmitt study conclusively plus giving a cleaner picture of industrial arts education in the Southern Applachain Region.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Collins (Last name), Samuel (First name), Robert (Middle name)

Exact Title A STUDY OF THE VOCATIONAL-INDUSTRIAL PROGRAM AT THE PRAIRIE VIEW AGRICULTURAL AND MECHANICAL COLLEGE.

Degree granted Ed.D. Date 1962 No. of pages in report 142

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was concerned with an investigation of the vocational-industrial program at Prairie View, giving consideration to the employment status of recent graduates, the compatibility of the program of instruction with accepted guiding principles and practices in this field, and the industrial intern program.

Source of Data and Method of Study:

To determine the employment status of the graduates of the department, a questionnaire was developed and mailed to a sample of 235 graduates. A return of 65 percent of the questionnaires sent out was received. A comparative analysis was made to determine the extent to which the program of instruction at Prairie View is compatible with generally accepted guiding principles and practices for the development of such program in vocational-industrial education. A survey was made to determine the effectiveness of the industrial intern program. Questionnaires were mailed to 141 graduates of the trade areas that comprise this program of work experience. A return of 64 per cent was received.

Findings and Conclusions:

It appears that there is considerable potentiality in the Department of Vocational-Industrial Education at Prarie View, for a program of instruction that provides for the acquisition, by students, of a greater amount of trade skill and knowledge. As a result of the findings of the study this would seem a prime way to increase the possibility of success in employment by graduates. It is suggested that an industrial work experience program which embraces all of the trade areas of the department may prove desirable in providing this additional trade skill and knowledge. It would seem that implementation of this program could be accomplished by following the same organizational structure and developmental procedures as used by those trade areas now providing for industrial work experience. There also seems to be potentiality in the department for a program of instruction that is more up to date in regards to the trade areas offered. Data presented in the study indicated the possibility of some trade areas being overcrowded. Developing the program of instruction so as to be more in keeping with the needs of industry would aid in relieving the congestion in some of the trade areas, thereby increasing the possibility of success in employment by the graduates.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION.
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Combs (Last name), Stanley (First name), LeQuatte (Middle name)

Exact Title A STUDY OF TERMINAL VOCATIONAL STUDENTS IN THREE CALIFORNIA PUBLIC JUNIOR COLLEGES: IMPLICATIONS FOR GENERAL EDUCATION.

Degree granted Ed.D. Date 1948 No. of pages in report 197

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was three-fold: (1) to ascertain characteristics of 320 so-called "terminal vocational" students in three public California junior colleges; (2) to discover the kinds of general education now offered these students; and (3) to suggest the content of general education that seems most suitable for terminal vocational junior college students as revealed by a study of their characteristics.

Source of Data and Method of Study:

Data for investigation of the problem were obtained (a) from an analysis of professional literature pertaining to junior college general education and terminal vocational students; (b) from a collection of personnel information each student; (c) from a study of statutory requirements in general education; and (d) from an investigation of the kinds of general education now available to these students and in which they enroll.

Findings and Conclusions:

1. The students investigated are not getting training in general education for well-rounded living.
2. In addition to vocational training, they need education for personal understanding, for relationships with others, and for active, participating, democratic citizenship.
3. Since these students appear to favor occupational goals to the exclusion of other areas of living, a dynamic approach to general education for them might be through its coordination with the students' occupational interests both within vocational classes and in a required core of general education studies.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Coomer (Last name), Jerry (First name), Wayne (Middle name)

Exact Title AN EXPERIMENTAL COMPARISON OF THE EFFECTS OF COOPERATIVELY AND COMPETITIVELY ORGANIZED CLASSES ON CONTENT ACHIEVEMENT.

Degree Granted PH. D. Date 1971 No. of pages in report ______

Granted by Purdue University (Name of institution) Layafette, Indiana (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To determine the relative advantages or disadvantages of cooperation and competition toward motivating mastery of verbal content. This study was conducted using 83 undergraduates enrolled in two divisions of an industrial supervision course. The content was drawn from one of the instructional units in the course entitled Planning and Decision-Making.

Source of Data and Method of Study

Subjects were randomly assigned to either a cooperatively organized subgroup or a competitively organized subgroup. Both experimental treatment groups received identical taped lectures. Following the lecture, subjects worked together in their subgroups on a treatment exercise. Achievement was measured by a multiple-choice criterion instrument. Subjects were also asked to respond to a 30-item attitude-behavior questionnaire.

Findings and Conclusions

The cooperatively treated subjects did not achieve significantly higher than did the competitively treated subjects.

The cooperatively organized subjects responded significantly more positively to half of the items on the attitude-behavior questionnaire.

It was concluded that:

1. Neither cooperation nor competition has a clear advantage in terms of effect on content achievement. They are equivalent strategies and can be expected to be equally effective toward promoting content mastery.
2. Cooperative organization of classes will produce higher quantities of group discussion as well as increasing the quality of group discussion.
3. Members of cooperatively organized groups have higher degree of commitment to and concern for other group members. They make less attempt to retain useful information for themselves but instead contribute their information freely to other cooperating students.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Cooper (Last name), Jack (First name), Harold (Middle name)

Exact Title COOPERATIVE ACTIVITIES OF INDUSTRY AND SECONDARY EDUCATION WITH SPECIAL REFERENCE TO PROGRAMS IN SOUTHERN CALIFORNIA

Degree granted Ph.D. Date 1961 No. of pages in report 189

Granted by University of Southern California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To trace the historical development of industry-education cooperation,
2. To inquire into the theory of industry-education cooperation,
3. To describe certain industry-education activities, and
4. To develop principles of industry-education cooperation.

Source of Data and Method of Study:

The study was a historical analysis of the development of industry-education theory and practice. The materials examined consisted of minutes of meetings, correspondence, newsletters, conference proceedings, reports, brochures, books, speeches, and various other materials. Personal interviews were conducted with twenty key persons in selected companies and school systems participating in cooperative programs to obtain additional factual information, to validate certain conclusions and recommendations encountered in the literature, and to secure individual judgments on questions pertinent to philosophy and scope of industry-education cooperation.

Findings and Conclusions:

Early cooperative activities involving industry and secondary education date back to the 1920's and 1930's, and were designed to serve short-range ends. The philosophy of supporting cooperative activities for the long-range beneficial effect on the company gained acceptance largely after 1945. The activities of local industries and schools in specific projects led to formulation of organizations to enhance general industry-education cooperation.

Industry will expand its own educational activities and provide increasing assistance to schools. An increase in number and a broadening of scope of the industry-educatio councils are expected. A theory of comprehensive responsibility for public education has won considerable acceptance. The role of the industry-education council must be that of resource in implementing the schools' instructional policy. The pairing of educational needs with industry resources is best accomplished by an industry-education council. The industry-education program should seek to provide instructional services to the school which are beyond the scope of regular tax-supported operations

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Cormack (Last name), Robert (First name), B. (Middle name)

Exact Title AN ANALYSIS OF THE REACTION OF NEW YORK STATE EDUCATORS TO FILMED SIMULATION MATERIALS DESIGNED TO IMPROVE OCCUPATIONAL AWARENESS.

Degree granted Ed.D. Date 1970 No. of pages in report 85

Granted by Indiana University (Name of Institution) Bloomington, Indiana (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of the study was to analyze possible users' reactions to a film series on occupational awareness that was developed for use in the schools of New York State.

Source of Data and Method of Study:

Subjects for this investigation included 72 secondary school counselors and educators from urban, suburban, and rural areas of the state of New York. A group questionnaire was used to evaluate the subjects' responses to each of 15 vignettes (short scenes) contained in a 16mm sound film. The film pertained to selected job-related attitude problems.

Findings and Conclusions:

It was concluded from an analysis of the findings that those who participated in the film's evaluation, in general, favorably disposed toward the filmed materials.

Neither environmental region nor job classification appeared to leave any noticeable effect upon possible users reactions to the filmed vignettes produced. Therefore, it was concluded that the filmed vignettes have applicability for use in rural, suburban and urban schools of New York State and by both counselors and educators within these schools.

Educators seemed most favorably disposed toward the vignettes on tardiness and absenteeism, personal habits, and working safely with others. They appeared less favorably disposed toward the vignettes job responsibility, and team spirit.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Cornwell (Last name), Raymond (First name), Leland (Middle name)

Exact Title WRITTEN INSTRUCTIONAL MATERIALS: AN EXPERIMENTAL COMPARISON OF PROBLEM-CENTERED AND TRADITIONAL ASSIGNMENT SHEETS.

Degree granted Ph.D. Date 1961 No. of pages in report 427

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To prepare a set of written instruction sheets emphasizing problem situations and student planning uncovering the basic content of a specific technical college course, and then to test the effectiveness of the materials in a suitable experiment.

Source of Data and Method of Study:

The experimental population was the 1957-58 class of regular male freshmen completing the year at Stout State College in Menomonie, Wisconsin. Three control measures were used. Normalized high school percentile rank was used a measure of ability. A pretest was developed to measure initial achievement in the subject area. The Preferred Instructor Characteristics Scale was used as a measure of preference for direct or problem instruction.

Findings and Conclusions:

1. There was enough difference between the two sets of assignments to produce differential achievement.
2. The problem-centered instruction promoted a significantly higher level of design and manipulative skill as measured by the performance test.
3. Students taught by problem assignments achieved as well at the end of the course on the information test as did the groups taught more directly.
4. When the criterion was the amount of information lost during the eight week period following instruction, there as a significant difference between experimental methods.
5. There were indications that the middle and low ability students profited more than those with high ability from the guided problem-solving.
6. There were no apparent relationships between a student's stated preference for the teaching methods and his ability or his achievement on any of the measures used.
7. As the two instructors sometimes had differing results, it would be a mistake to advocate a universal superiority for problem-centered methods.
8. The responsiblity of the teacher appeared to be one of balancing direct instructional techniques with sufficient individual problems to challange the student.
9. The instructors noted that more effort was required by both the student and the teacher in problem-centered classes.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Crawshaw, Marshall, R.
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT OF THE DRIVER EDUCATION AND TRAINING PROGRAM IN THE LOS ANGELES CITY SCHOOLS, 1945-1949.

Degree granted Ed.D. Date 1950 No. of pages in report 206

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study is to show the development of the driver education and training program in the Los Angeles City Schools from the start of the first course in September, 1945, to the end of the first ten-weeks, city-wide course in November, 1949.

Source of Data and Method of Study:

Data for the study of the problem were obtained from (a) a review of the literature in the field of driver education and training; (b) examination of school records at University High School, Los Angeles; (c) interviews with representatives of local community agencies and correspondence with national agencies; (d) an analysis of twenty-four replies to a questionnaire sent to national authorities in the field of driver education and training and to selected persons familiar with the problems in driver education and training in California; (e) analysis of materials in the office of the Health and Physical Education and Youth Services Branch of the Los Angeles city Schools concerning the city-wide program in driver education.

Findings and Conclusions:

1. Instructors trained in both classroom and behind-the-wheel phases of the program were available for instructional purposes in the workshops held in 1949 to secure enough trained teachers for the city-wide program.
2. Experienced instructors were available to staff the dual-control driving demonstration automobiles.
3. The value of participation in the driver education program was demonstrated to cooperating agencies, and they were ready and willing to participate in the city-wide program.
4. Interest in the problems presented in this study prompted members of the doctoral committee to contribute their experience and thought to "A Recommended Program in Driver Education and Training for the Los Angeles City Schools."
5. A background of experience was available to provide a course of study adapted to local needs, and to offer a framework for the largest single program of driver education in the United States.
6. Experience in the pilot program indicated the need for cooperative planning to evaluate the program.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Cummings (Last name), Lawrence (First name), Joseph (Middle name)

Exact Title THE VOCATIONAL DEVELOPMENT OF THE SYMPHONY MUSICIAN

Degree granted Ed.D. Date 1969 No. of pages in report __________

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study is concerned with the vocational development and present status of the symphony musician.

Source of Data and Method of Study:

The primary sources of information for this study were derived from specific writings on music as a career, interviews and correspondence with symphony orchestra personnel managers, conductors, musicians, and others concerned with this field. The specific data regarding symphony orchestra budgets, musician's wages and length of concert seasons is based upon information from the International Conference of Symphony and Opera Musicians.

Findings and Conclusions:

1. The number of symphony orchestras continues to grow but will be sustained primarily in the future through greater government subsidy;
2. Each year there are from 36 to 58 positions available in the Group I and Group II Orchestras;
3. Most often, only experienced symphony players are accepted for these positions;
4. It is often important to "know someone" to obtain an audition for a major symphon orchestra;
5. There is still considerable race and sex discrimination against nonwhite and women musicians among the Group I and Group II Orchestras;
6. There are from 150 to 250 positions available each year in the Group III Orchestr
7. There is little discrimination against nonwhite and women musicians among the Group III and Group IV Orchestras;
8. The younger, well-qualified musician is preferred to an older musician of equal ability;
9. String players stand the best chance of obtaining symphonic positions;
10. Only 20 to 25 percent of all symphonic positions offer a moderate or better income;
11. All symphonic musicians supplement their orchestral earnings with some form of employment outside the orchestra;
12. Each individual musician must build himself an additional position outside of the orchestra upon which will depend many of the satisfactions and rewards derived from a musical career.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Cuony, Edward, Richard
(Last name) (First name) (Middle name)

Exact Title AN EVALUATION OF TEACHING JOB FINDING AND JOB ORIENTATION.

Degree granted Ph.D. Date 1953 No. of pages in report 186

Granted by New York University New York, New York
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To evaluate the effectiveness of a course in job finding and job orientation, which was taught to an experimental group of seniors in the High School at Geneva, N.Y., during the second semester of the school year 1950-51.

Source of Data and Method of Study:

Both the experimental and control groups of students came from the same class of the same school, and entered the same labor market at the same time. The groups were equated by sex and by random sampling. The equating procedure was pre-tested on three previous classes; it produced groups which differed negligibly on the criteria, when neither group had the course.

Findings and Conclusions:

1. Twenty-seven percent (27%) more of the experimental group said they "liked" their jobs, or were "enthusiastic" about them, or "loved" them.
2. Thirty-three per cent (33%) fewer of the experimental group said they had thought seriously about changing their current jobs.
3. Sixty per cent (60%) fewer of the experimental group said they would like to change both their jobs and their occupations.
4. Five students in the experimental group said they would not exchange their jobs for any other; there were no such students in the control group.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Dalton, Francis, Warren
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT OF INDUSTRIAL EDUCATION IN MICHIGAN WITH SPECIAL REFERENCE TO SMITH-HUGHES WORK.

Degree Granted Ph.D. Date 1937 No. of pages in report 378

Granted by The University of Michigan Ann Arbor, Michigan
(Name of institution) (City, State)

Where Available Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

A brief resume' of the development of industrial education in the world with particular emphasis upon the development and progress of subsidized industrial education in Michigan. The principle aim throughout has been to bring together facts which appear to be significant without attempting to philosophize upon the effects of industrial education upon society.

Source of Data and Method of Study

This is a historical study utilizing primary and secondary cources of data. Events and elements affecting the development of industrial education are chronogically listed.

Findings and Conclusions

The study traces industrial education in its historical development and its acceptance in the United States. Federal legislation, from the Morrill Act to the George-Deen Act, and Michigan legislation, primarily the Tuft and James Laws are discussed in detail as to their effect on industrial education in Michigan. The establishment and growth of industrial education in thirty-three Michigan cities and the types of industrial classes held are presented as well as the problems surrounding teacher training and requirements.

Industrial education societies and organizations in Michigan are viewed in relation to their roles in the development of industrial education. A comparison of industrial education in Michigan with the other states was made on the basis of fund allotments, expenditures, enrollment and teacher training.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNCIAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Davidson, Adele, Karp
(Last name) (First name) (Middle name)

Exact Title CALIFORNIA ASSOCIATION FOR ADULT EDUCATION

Degree granted Ed.D. Date 1960 No. of pages in report 303

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of the study is to trace the origin, development and demise of the CAAE. The goals of the Association and the methods of attaining these goals are given particular attention.

Source of Data and Method of Study:

The methods used are: documentary research, recorded interviews, and direct correspondence. The records and publications of the CAAE have been utilized, as has been the correspondence of the officers and members. As there are many gaps in the available source materials, taped interviews were made. Key people in the Association were asked to recall events and opinions about the events in order to formulate as complete a history as possible.

Findings and Conclusions:

A comparison between the stated goals and the accomplishments of the CAAE would indicate that they were not related. This was due primarily to the fact that the goals were too general and for the most part unrealizable. According to some CAAE leaders the Association made a contribution to the state. The contributions mentioned were: (1) the CAAE helped to clarify the adult education movement in the state; (2) the CAAE changed the attitudes of thousands of people toward adult education; (3) it strengthened the hand of local leaders; (4) it worked the Universi more into the lives of the people; (5) it developed programs and conducted surveys; (6) state support of public education would not be as extensive if it were not for the CAAE. According to a selected group of adult education leaders in the state, most of whom were at one time connected with the Association, there is a need for a similar organization now for: (1) workers in adult education who need to feel that their efforts have meaning and purpose and that together they can have an impact on the community; (2) those adult educators who desire broader contacts; (3) rallying support in case of attack; (4) promoting and telling the story of adult education; (5) the solution of state-wide and community problems. Recurring attempts to organize adult education on the state level in California would seem to bear out these opinions. In the opinion of the author the problems of finance and common goals would have to be solved before a cross-sectional organization could give any intelligent direction to adult education in the state.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION

JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Davis, Eddie, Moore
(Last name) (First name) (Middle name)

Exact Title INDUSTRIAL ARTS FOR MENTALLY RETARDED STUDENTS IN THE JUNIOR AND SENIOR HIGH SCHOOL OF MISSOURI.

Degree granted Ed.D. Date 1971 No. of pages in report

Granted by University of Northern Colorado Greeley, Colorado
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. (x)

Purpose of Study:

(1) To ascertain the criteria used in the content selection of industrial arts areas or courses for mentally retarded students, and (2) to develop a guide to assist industrial arts teachers in the formulation or expansion of such programs.

Source of Data and Method of Study;

Questionnaires were sent to directors, supervisors, and teachers of industrial arts and special education personnel of the Missouri Public School districts that had industrial arts programs for mentally retarded youth. One hundred twenty-nine personnel participated in this study.

Findings and Conclusions:

1. Factors used to designate M.R. youth; chronological and mental age (48-78 I.Q.), ability, interest, existing facilities, and teacher qualifications. Factors to select course content: ability, interest, mental age, existing facilities, length of activity, and teacher qualification.
2. I.A. class size for m.r. youth: maximum 16, minimum or ideal not over 9. M.R. share regular facilities.
3. Educational objectives apply alike, but techniques and methods differ in attaining with M.R. I.A. to be more occupationally oriented with M.R.
4. Facotrs in selecing I.A. course content for M.R.: safety-health instruction, manipulative skills, occupational information, variety of practical experiences, application to home use, personal and social development, attitude-habit development, occupational training, leisure time activities, exploratory experiences, consumer information, and subject integration.
5. Junior high offering: Arts and Crafts, General Shop, Unit Wood, Unit Metal, and Drafting (Home Mechanics suggested). Senior high school offering: Unit Wood, General Shop, Unit Metal, Cooperative Work Programs, and Arts and Crafts (Home Mechanics and Occupational Information Suggested).

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Deady (Last name), John (First name), Joseph (Middle name)

Exact Title A COMPARISON OF TECHNICAL GRAPHIC ARTS COMPETENCIES NEEDED BY HIGH SCHOOL JOURNALISM AND GRAPHIC ARTS TEACHERS IN INDIANA.

Degree granted Ed.D. Date 1970 No. of pages in report 146

Granted by Indiana University (Name of Institution) Bloomington, Indiana (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was designed to determine whether differences in perceived need for technical graphic arts competencies existed between high school journalism and graphic arts teachers.

Source of Data and Method of Study:

Graphic arts teachers and journalism teachers and advisers of school journalism publications currently employed in their respective fields in Indiana constituted the populations from whom opinions concerning the need for technical graphic arts competencies were sought. The technical graphic arts competencies were derived from an analysis of technically oriented textbooks and reference books utilized by personnel in journalism and graphic arts. Once the competencies had been established validated, and structured into a research instrument they were then rated, in terms of the degree of need, by journalism teachers and advisers and graphic arts teachers to determine if any degree of commonality existed between the responses of both groups of educators. Ninety-seven competencies were rated by both groups of teachers.

Findings and Conclusions:

An assessment of the responses of graphic arts personnel indicated they need to possess a higher degree of technical competence of the 97 variables included in the research instrument than journalism personnel. Journalism teachers and advisers rated only one area within the questionnaire higher than graphic arts teachers, this area was "contemporary design."

Responses of the graphic arts teachers indicated they feel they needed "considerable understanding" of the competencies while journalism teachers felt they needed "limited" or "reasonable" understanding of the competencies.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author: Devlin (Last name), Leon (First name), Gilbert (Middle name)

Exact Title: AN ANALYSIS AND EVALUATION OF THE DOCTORAL DEGREE PROGRAM IN INDUSTRIAL EDUCATION AT TEXAS A&M UNIVERSITY.

Degree granted Ed.D., Date 1971 No. of pages in report 382

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfiche (x) E.R.I.C. (x)

Purpose of Study

The primary objectives of this study were to provide a historical record of predoctoral profiles of the enrollees, a postdoctoral profile of the graduates, an evaluation and recommendations for emphasis and expansion with respect to the doctoral program in industrial education at Texas A&M University.

Source of Data and Method of Study

The research was designed to collect data from graduates, the active graduate students, and the inactive graduate students of the Department of Industrial Education at Texas A&M University. Data gathering instruments were developed utilizing outlined objectives and mailed to the 163 persons identified as the population. There were 143 returns--a return of 87.7 percent. Interviews were conducted with the two former department heads and the present department head to provide the historical aspects of the program.

Findings and Conclusions

1. The program was considered to be flexible and allows inter-disciplinary studies.
2. The graduates are generally satisfied with the degree.
3. The association with other doctoral students and independent studies are the most important aspects of the program.
4. The time required to complete the degree was reasonable.
5. The program was generally relevant to success in the future professional assignments.
6. The course work in industrial education was of moderate value for subsequent professional duties.
7. The amount of financial assistance and reputation of the program are the most influential aspects in terms of recruitment.
8. The doctoral advisors are much too busy to provide adequate counseling.
9. There is a need for a more specific evaluation in terms of the program requiremen faculty effectiveness, and student's needs.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Donadio, Blase,
(Last name) (First name) (Middle name)

Exact Title THE ROLE OF THE JUNIOR COLLEGE IN COMPUTER SYSTEMS TRAINING FOR BUSINESS DATA PROCESSING.

Degree granted Ed.D. Date 1969 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To survey and examine the existing occupational classifications in business data processing to include the computer programmer.
2. To survey and examine the data processing programs offered in the junior colleges.
3. To review the literature and to report on related studies.

Source of Data and Method of Study:

Preliminary conferences in Sacramento with staff members of the California State Department of Employment, the Business Education Division of the State Department of Education, and the California Educational Data Processing Association provided data on employment in the computer field and developments in high school and junior college programs in data processing. Exploratory questionnaires were returned from sixty of the seventy-four junior colleges; the revised questionnaire was sent to twenty-five selected junior colleges and twenty-one were returned. The student population ranged from 780 in a rural junior college to 9,400 in a metropolitan junior college.

Findings and Conclusions:

A shortage of technically trained people in the computer-related occupations exists, and will continue to exist. The cost for establishing and operating a data processing program, even for a junior college of 1.000 students, does not appear to be prohibitive. The programs in data processing appear to be adequate in the education and training for occupational competency in both the operator and programmer fields of occupation

There is a wide range of opportunities in computer-related occupations for junior college students. Continued cooperative efforts of educators and the industry may bring about a broader base of recruitment for trainees, and the extension of the data processing program to provide for an AA Computer Programmer degree.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Dougherty, Dora, Jean
(Last name) (First name) (Middle name)

Exact Title THE USE OF PRIMARY CONTACT FLIGHT TRAINERS: A COMPARISON OF TWO METHODS OF PRE FLIGHT INSTRUCTION.

Degree granted Ph.D. Date 1955 No. of pages in report 159

Granted by New York University New York, New York
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To investigate a training technique which might reduce the amount of time spent by the instructor with each student pilot;
2. To test the predictive ability of a mechanical comprehension test in indicating the fast learner in a group of civilian student pilots; and,
3. To determine any differences in the ability of the sexes in performing the type of flight maneuver utilized in this study.

Source of Data and Method of Study:

The new training technique under scrutiny was a combination of the solo trainer practice and classroom work. The total number of subjects was 36. These were selected at random so that equal numbers of men and women with high, medium and low mechanical comprehension test scores were in each training group.

Findings and Conclusions:

The results of this study indicate that the group receiving solo practice in the flight trainer was able to reach the level of proficiency demanded in significantly less time than the other groups. The high, medium and low mechanical comprehension test score groups learned the maneuvers equally well. It was revealed that there was also no difference in the performance of men and women in so far as the learning ability of the measures incorporated in this study.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Drew (Last name), Alfred (First name), Stanislaus (Middle name)

Exact Title THE RELATIONSHIP OF GENERAL READING ABILITY AND OTHER FACTORS TO SCHOOL AND JOB PERFORMANCE OF MACHINIST APPRENTICES.

Degree granted Ph.D. Date 1962 No. of pages in report 173

Granted by University of Wisconsin (Name of Institution) Madison, Wisconsin (City, State)

Where Available: Microfilm (xx) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was concerned with the relationship of performance on reading and other standardized tests to the school and job performance of machinist apprentices.

Source of Data and Method of Study:

The subjects were machinist apprentices who entered the School of Vocational and Adul Education (West Allis, Wisconsin) for related instruction during the school years, 1954-57. The subjects, all males chiefly high school graduates, average age of 20, were grouped as followes: N=97, all who entered the school and took a reading test; (1) N=65, those who took the reading test and also completed 576 hours of related instruction by 1959; and (3) N=33, those who took the reading test, completed 576 hours of instruction, and who were also indentured at least two years by the Allis-Chalmers Manufacturing Company.

Findings and Conclusions:

1. For the group of 65 apprentices, the majority of relationships between the variou reading scores and school grades were positive and significant at the .05 level.
2. The most promising predictors for school achievement were the total comprehensio score, the effective reading rate, and the mental maturity score. For job performance ratings, the mechanical adaptability score and the effective reading rate were the most promising predictors; the mental maturity and mechanical comprehension scores also warranted consideration as predictors of job performance.
3. Multiple regression equations were not developed, because combined predictors failed to produce significant increments to best, single predictor, correlation values.
4. Mechanical interest was not related significnatly to either school of job performance.
5. Substantially high interrelationships existed among some predictor variables, especially between reading scores and mental maturity.
6. All relationships between school grades and "total score" job ratings were positive, but significant relationships at the .05 level were limited to the metallurgy, technology, "total quality," and "total Quantity" school grades.
7. Comparison of percentile ranks showed, that, generally the reading performance of the 97 machinist apprentices was as good as, or better than, that of high school seniors and college freshmen (national norms.).

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Duenk	Lester	Gerald
(Last name)	(First name)	(Middle name)

Exact Title A STUDY OF THE CONCURRENT VALIDITY OF THE MINNESOTA TESTS OF CREATIVE THINKING, ABBR. FORM VII, FOR EIGHTH GRADE INDUSTRIAL ARTS STUDENTS.

Degree granted Ph.D. Date 1966 No. of pages in report 225

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The primary objective of this study was to establish the concurrent validity of the Minnesota Tests of Creative Thinking, Abbr. Form VII, by determining the relationship between its scores and criterion measures based upon industrial arts oriented creative performance tests developed by the investigator.

Source of Data and Method of Study:

The population-sample included 129 eighth grade boys receiving instruction in industrial arts in two suburban junior high school. A specialized performance test (Approach B) of industrial arts creativity was administered during the same period of time in which another investigator measured the creative abilities of the same students through observation of classroom performance (Approach A), and obtained MTCT, Abbr. Form VII measures (Approach C). Descriptive data for the sample, gathered from cumulative records, included verbal and non-verbal intelligence test scores, average teacher grades and standardized achievement test scores for selected subject matter areas. A graphic personality rating scale was completed by teachers for each subject participating in the study.

Findings and Conclusions:

1. Generally low relationships found between Approach B and C measures suggest that the MTCT, Abbr. Form VII, paper and pencil tests of creativity are inefficient predictors of the factors required by students in the creative performance of industrial arts related tasks.
2. The fact that high significant relationships were not discovered between creativity as expressed in a typical performance situation and creativity as measured by a specialized performance test suggests that far more attention need be given to the motivational and substantive aspects of creative performance.
3. The findings indicate a relative independence of figural, behavioral and symbolic types of creative behavior.
4. This study supports findings by several investigators which point to low or insignificant relationships between test measures of creativity and IQ for above average IQ populations.
5. Positive relationships were found to exist between certain traits of personality and creativity.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE AIAA · ACIATE · NAITTE

Author Edmunds, Niel, A.
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION OF TRADE AND INDUSTRIAL EDUCATION PROGRAMS AND THE PROBLEMS RELATING TO THE IMPLEMENTATION OF THESE PROGRAMS IN SMALL HIGH SCHOOLS.

Degree Granted Ed.D. Date 1969 No. of pages in report 136

Granted by Utah State University Logan, Utah
(Name of institution) (City, State)

Where Available Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This study identified the characteristics of existing trade and industrial education programs or courses in small high schools and obtained the rank order of the problems relating to implementation.

Source of Data and Method of Study

The study used a random proportionate sample of schools enrolling 300 or less students, grades nine through twelve, located in the states of Colorado, Idaho, Montana, Utah, and Wyoming. Questionnaires were sent to 150 superintendents asking for information concerning the characteristics of existing offerings and the ranking of the problems of implementing trade and industrial programs.

Findings and Conclusions

Characteristics: (1) few trade and industrial programs (T. & I.) with auto mechanics and carpentry most popular, (2) most courses were taught two semesters to eleventh and twelfth graders jointly, (3) most instructors were state certified with less than six years experience, (4) two thirds of the schools received state aid and one third received federal aid, and (5) very few advisory committees were used.

Problems (1) administrators are unable, unwilling, or uninterested in developing T. & I. programs and fail to understand and interpret laws concerning courses for the handicapped. (2) there is a need for improved communications to further T. & I., (3) courses in the surveyed schools are similar to courses on the national level, (4) whether or not the school offers T. & I. does not influence problem rating but does influence alternate program selection, (5) school size does not influence problem rating but does influence program selection, (6) the majority of existing courses meet basic requirements, and (7) T. & I. offerings must fit the needs and conditions of the students and the community.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Edwards (Last name), John (First Name), Taylor (Middle name)

Exact Title COMPETENCIES NEEDED IN INDUSTRIAL TECHNOLOGY MANAGEMENT AND SUPERVISORY POSITIONS IN SELECTED INDIANA INDUSTRIES.

Degree granted Ed.D. Date 1970 No. of pages in report 118

Granted by Indiana University (Name of Institution) Bloomington, Indiana (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was undertaken for the purpose of determining competencies needed by management and supervisory personnel in selected Indiana industries.

Source of Data and Method of Study:

Through the cooperation of the Indiana State Chamber of Commerce, a jury of experts was utilized for the development and refinement of an inquiry form. This instrument was mailed to the person in charge of each business and industry in Indiana employing 500 or more people.

Findings and Conclusions:

The basis for which these findings were made was on various levels of applicability for management and supervision. These levels were; (1) top management, (2) middle management, (3) lower management, (4) staff supervision, and (5) line supervision. A summary of the data revealed the following major findings:

1. Although new developments of technology have created many specialists, there continues to be a demand for personnel having greater breadth in their training background.
2. Social competencies are considered important among leaders of business and industry. This was reflected with 88 per cent of the respondents having judged social competencies above average in importance. No respondent considered this group of competencies to be unimportant.
3. The highest value placed upon any group of competencies was that assigned to an understanding of human behavior. The reliability of this was also substantiated in the findings of preferred curriculums.
4. According to parameters identified, the size of the company made no difference in the value judgements.
5. A significant degree of agreement was observed in ranking courses of study considered most useful in management and supervisory training programs.
6. The greatest amount of importance for all competencies was assigned to top management and middle management positions; moreover, the lowest value judgements were directed toward the level of line supervision.
7. Because of the high degree of agreement between the jury and the population sample, for all practical purposes future questions could conceivably be answered by a small representative group of business and industrial leaders.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Elmgren, G., Theodore, Jr.
(Last name) (First name) (Middle name)

Exact Title THE RELATIONSHIP OF THE VOCATIONAL GOALS AND APTITUDES OF JUNIOR COLLEGE TECHNICAL STUDENTS TO EMPLOYMENT REQUIREMENTS.

Degree granted Ed.D. Date 1963 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To identify occupational goals of students with technical majors in the fields of Drafting, Electronics, and Welding, who were a part of the incoming classes of Spring 1958 through Fall 1961 at El Camino College.
2. To identify the apparent aptitude and intelligence of these students as revealed by test scores recorded in their files.
3. To determine how many of these students completed the sequence of courses required for their major.
4. To identify the current and projected manpower requirements for industry in the communities served by El Camino College in the specified occupational fields of Drafting, Electronics, and Welding.
5. To ascertain the amount of education and intelligence or natural ability which industrial concerns say employees must have to be adequately equipped for success.
6. To determine if there is an identifiable and definitive relationship between employment requirements and student goals and aptitudes.

Source of Data and Method of Study:

Instructor's roll books and permanent files covering all pre-employment students enrolled in Drafting, Electronics, and Welding courses at El Camino College from the Spring semester of 1958 through the Spring semester of 1962 were examined to determine probable aptitude and vocational goals on each of 746 students involved in the study. Information extracted was: name, sex, grade in course, age, high school, rank in high school graduation class, rank percentile of same, junior college major, educational objective, I.Q., School and College Ability Test score, and SCAT percentile on national norms. Ten percent of the 423 industrial firms in the communities served by the college employing over 25 persons were surveyed by questionnaire. There was a 71.4 percent return of the questionnaire.

Findings and conclusions:

A more able caliber of student than has been enrolled must be encouraged to enter and complete a major in the technical programs in order to meet employment requirements.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TEADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Erwin (Last name), Clifford (First name), Hubert (Middle name)

Exact Title AN INVESTIGATION OF BUSINESS AND INDUSTRIAL EMPLOYMENT NEEDS IN RELATION TO EDUCATIONAL AND VOCATIONAL PREPARATION IN SELECTED AREAS OF ILLINOIS.

Degree granted Ed.D. Date 1963 No. of pages in report 141

Granted by Indiana University (Name of Institution) Bloomington, Indiana (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To ascertain the nature and amount of training and education desirable for employees in selected business and industrial establishments in a five county area in east central Illinois.

Source of Data and Method of Study:

The design of this research project required the location of all business and industrial establishments of the area subject to the Bureau of Old Age and Suvivor's Insurance coverage in the last calendar quarter of 1962. The study was limited to establishments with aminimum of five full time exployees. The list of establishments was supplied by the Illinois State Employment Service. The information presented in the study was obtained through inquiry forms sent to 310 establishments. The Standard Industrial Classification was used to facilitate handling of data. Each business and industry was assigned an industry code on the basis of the major activity which was determined by the products produced or handled, or the services rendered. The information was tabulated and interpreted by major industry divisions and groups.

Findings and Conclusions:

The study revealed information concerning the needs and preferences of employers regarding school organized and conducted training programs. It also revealed specific courses and course sequences desirable for entry preparation. One of the major desires for prospective employees was the mastery of a skill along with a good general education background necessary to make effective use of the skill. Emphasis was placed on the provision of work experience in conjunction with specific vocational instruction to enable the students to apply and practice the skills and knowledge gained. It was believed that the holding power of area schools could be improved by organizing programs of study adapted to the needs and interests of students in relation to the needs of employers. Of major concern was the development of school training facilities that would be both economical and effective in preparing people for occupational entry. Preference was indicated for high school vocational training for the substantial number of students whose training would lead directly to employment, and for the development of area vocational training centers strategically located to best serve specialized training needs for the largest number of area residents.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Erwin (Last name), William (First name), Rentz (Middle name)

Exact Title A SURVEY OF THE CURRICULUM FOR INDUSTRIAL ARTS TEACHER EDUCATION AT COLORADO STATE COLLEGE BASED UPON THE RESPONSES OF THE GRADUATES FROM 1950 TO 1960.

Degree granted Ed.D. Date 1963 No. of pages in report 267

Granted by University of Houston (Name of Institution) Houston, Texas (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To survey the effectiveness of the industrial arts teacher education program at Colorado State College and to determine if changes or improvement should be made.

Source of Data and Method of Study:

The industrial arts majors who graduated from Colorado State College during the ten year period, 1950-1960, to become teachers were selected as the most ideal group to participate in the survey.

Findings and Conclusions:

1. Approximately one-half of the industrial arts teacher education students participate in social, honorary, and service organizations; yet two-thirds of the respondents were at the time of their response sponsoring such activities.
2. Approximately two-thirds of the industrial arts teacher education students are members of professional organizations.
3. The respondents were generally conscientious readers of industrial arts literature, but less interest was shown in general education literature and the state and national education journals.
4. Interest in the professional courses appeared to be less than is to be desired.
5. Generally graduates have taken and rated of value four courses in each of the wood, metal, and drafting areas three in graphic arts, two in crafts, and one in bookbinding.
6. Five areas, auto mechanics, stage craft, girls shop, power mechanics, and general safety, were taught by some of the respondents.
7. The industrial arts teacher education curriculum was considered by the respondents to meet ten of the thirteen criteria used at a satisfactory degree.
8. A need for improvement in three areas was indicated. These are, (1) problems related to "method" in specific teaching situations; (2) shop planning, maintenance and upkeep of equipment, and purchasing and administering of supplies; and (3) development of a command of curriculum problems as they relate to industrial arts.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA- ACIATE - NAITTE

Author Fluck, Bryan, Vincent
(Last name) (First name) (Middle name)

Exact Title THE RESPONSIVENESS OF THE CURRICULA OF THE VOCATIONAL-TECHNICAL SCHOOLS TO CHANGES IN THE LABOR FORCE.

Degree granted Ed.D. Date 1970 No. of pages in report 163

Granted by Lehigh University Bethlehem, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This research investigates whether the curricula of a typical new vocational-technical school are responsive to the labor data of the area it serves.

Source of Data and Method of Study

The investigation was descriptive and analytic. It was conducted in three phases. The first phase was a review of the types of economic criteria which would be helpful to vocational-technical curricula planning. The second phase consisted of a description of the federal legislation upon which the foundations of present vocational-technical curricula are established and the curricula for its four area schools. The third phase was a comparison of labor force changes and vocational-technical curricula development.

Findings and Conclusions

The following conclusion seems warranted. The evidence indicates that the methods used in planning the curriculum and facilities of the Montgomery County Vocational-Technical Schools have resulted in vocational-technical curricula which are, in several respects, strinkingly inconsistent with labor market patterns. One major factor causing this lack of responsiveness of vocational-technical curricula to labor force patterns is the federal and state regulations for financial support which stipulate methods for designing and equipping extensive facilities without allowing sufficient flexibility or time for appropriate curriculum planning. It appears therefore, that the effectiveness of these schools in fulfilling the goals implicit in legislation has been diminished. If the labor force develops in accordance with indications supplied by current data, the schools may be less effective in responding to national, regional, and local needs than they would have been had their curriculum and facilities reflected coherence with labor force trends.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE AIAA - ACIATE - NAITTE

Author Franchak, Stephen, J.
(Last name) (First name) (Middle name)

Exact Title MULTIVIEW ORTHOGRAPHIC PROJECTION CONCEPTS AND THE LEARNER: THREE INSTRUCTIONAL STRATEGIES.

Degree Granted Ph.D., Date 1971. No. of pages in report 211

Granted by The Pennsylvania State University State College, Pennsylvania

Where Available. Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The major purpose of the study was to investigate the relative effectiveness of three instructional strategies for the learning of multiview orthographic projection concepts. In addition, an assessment was made of the relationship between visual-haptic aptitude scores and scores on a test of multiview orthographic projection concepts.

Source of Data and Method of Study.

The treatment consisted of six lessons on multiview orthographic projection concepts taught to 251 seventh grade boys. The quasi-experimental design 10 by Cambell and Stanley (1969) was used for this study. Each teacher administered the three differential treatments (instruction strategies) to the randomly assigned classes. Test instruments involved a multiview orthographic projection test and a visual-haptic aptitude test. Testing situations involved a pretest and postest, initial learning, one-week retention and six-weeks retention. The main statistical procedures used for the analysis of data were the analysis of covarianace and the Pearson Product Moment Correlation.

Findings and Conclusions

The three instuctional strategies involved certain classes receiving (1) three-view orientation only, (2) other classes receiving a two-step sequence starting with two-view orientation first followed by three-view, and (3) a three step sequence starting with one-view, then two-view, and finally three-view orientation.

The results of this quasi-experimental study and the assumtions made in conducting it lets the researcher to conclude that the collected data failed to statistically support the belief that instructional strategies, which take into account relevant and irrelevant cues of multi-view orthographic projection concepts, will enhance the learning of seventh grade boys as opposed to those instructional strategies which do not account for the relevant and irrelevant cues. Further, that visually classified learners, who seemingly would prefer visual experience, do not necessarily have or show greater potential for learning multi-view orthographic projection concepts than those classified as haptic learners.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Garrett (Last name), Arthur (First name), Milton (Middle name)

Exact Title THE IMPACT OF AN AMBIGUOUS WAGE REOPENER CLAUSE IN A COLLECTIVE BARGAINING CONTRACT AND AN EMPLOYEE POLL ON LABOR RELATIONS IN A PETROCHEMICAL PLANT ON THE TEXAS GULF COAST.

Degree granted Ed.D. Date 1971 No. of pages in report 322

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. (x)

Purpose of Study

The purpose of this labor realtions/labor law study was to document the occurrence and impact of an unusual wage reopener clause and employee poll. The resulting events encompassed many of the provisions covered in the three major federal labor laws.

Source of Data and Method of Study

The sources of data were from taped interviews of principal persons in the dispute and microfilmed files of (1) The Firestone & Rubber Company, Orange, Texas; (2) Oil, Chemical and Atomic Workers International Union AFL-CIO, District Four, Houston, Texas; and (3) The National Labor Relations Board, Region Twenty-three, Houston, Texas. The method of study was to sort and arrange some 10-12,000 documents after the interviews had occurred.

Findings and Conclusions

The findings are as follows: (1) there was no real victor after a four year hiatus period of the dispute, (2) the tandem management of this plant with a neighboring Louisiana plant was a poor decision and arrangement. (3) a policy book outlining employee's rights and responsibilities should have been in the hands of all personnel, (4) poor union leadership existed and the process for selection of their original leaders was in violation of the law, and (5) the violence that occurred during the strike was irresponsible, unwarranted and shameful.

The conclusions are as follows: (1) a condition existed under tandem management causing employee interest in organized labor, (2) the poll ordered by a federal district court (and ruled illegal) could have been accomplished by different means, (3) tandem management might have worked if it had been more responsive to employee needs and if proper grievance procedures existed, and (4) a union was warranted within the Firestone plant.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Gilbreath, Tommy, Dee
(Last name) (First name) (Middle name)

Exact Title AN EVALUATION OF A MODIFIED COORDINATED VOCATIONAL-ACADEMIC EDUCATION PROGRAM FOR POTENTIAL DROPOUTS IN THE AUSTIN PUBLIC SCHOOLS.

Degree granted Ed.D., Date 1971 No. of pages in report 150

Granted by Texas A&M University College Station, Texas
(Name of institution) (City, State)

Where Available. Microfilm (x) Microfiche (x) E.R.I.C. (x)

Purpose of Study

To evaluate a pilot program for underachievers in the Austin Independent School System by using an attitude measuring instrument and data gathered from school files.

Source of Data and Method of Study

An attitude measuring instrument was used as the major testing instrument. Other data were gathered by use of a periodic questionnaire administered to the students. Information was also gathered from school records on attendance, grades, and discipline records. Personnel connected with the program were interviewed to determine their reaction to the program.

Findings and Conclusions

The findings from the data gathered indicated that students in the program did not have a significantly better attitude toward school. In addition, their record in terms of attendance, grades, participation in school activities, jobs hand hobbies was not significantly better than students not in the program.

It was concluded that the program was not a success in terms of its stated objectives even though some intangible benefits were seen by virtue of the periodic questionnaires and the teachers' statements. Reasons cited for the lack of success included lack of leadership, lack of proper financing, lack of planning time for teachers, and the need for specific guidelines for teachers to follow.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Gordon , Kennith , G.
(Last name) (First name) (Middle name)

Exact Title THE EDUCATION TRAINING, AND CLASSIFICATION OF MARINE TECHNICAL PERSONNEL (Seagoing).

Degree granted Ph.D. Date 1971 No. of pages in report 218

Granted by Florida State University Tallahassee, Florida
(Name of institution) City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This study was designed to ascertain and describe the essential education, training, and classificaiton characteristics of marine technical personnel, to suggest the resulting implications to oceanographers, technical educators and institutional administrators who might be concerned with developing or coordinating marine technology programs.

Source of Date and Method of Study

Marine technical personnel were studied and compared to determine the tasks required and training needed. Methods were: direct observation, the depth interview and the free associative interview in conjunction with job analyses.

Findings and Conclusions

This study revealed that marine technical students must exhibit a strong affinity for the sea as a prerequisite for successful oceanic employment. That practical experience in the oceanographic environment should be a mandatory requirement prior to certification as a marine technician or technologist. That technicians should continue their education beyond junior college, probably throughout the master's degree level.

This research also investigated the characteristics of seagoing technical personnel of three countries: United State, Norway, and the Federal Republic of Germany. It was found that American marine technical personnel do not share peer group identity with marine scientist and oceanographers. Nor do they work with as much independence and freedom as compared to European technicians.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Guditus, Charles, William
(Last name) (First name) (Middle name)

Exact Title GUIDELINES FOR THE AREA VOCATIONAL (TECHNICAL) SCHOOL IN PENNSYLVANIA.

Degree granted Ed.D. Date 1965 No. of pages in report 147

Granted by Lehigh University Bethlehem, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to develop a rationale for the area vocational (technical) school.

Source of Data and Method of Study

The first three of the four thesis were approached through documentary analysis. The fourth thesis of the study was explored through comparative analysis of the opinions of industrial leaders in the Lehigh Valley and certain vocational (technical educators who hold responsibility for developing educational policy for that area.

Findings and Conclusions

1. Educational planning should be shifted from a local to state-wide basis. This planning should become the function of an advisory body established by the State Council of Education and should operate on a full-time basis.
2. The comprehensive high school should be decisively established as the institution to encompass all educational programs at the secondary level.
3. The area vocational (technical) school should be fitted to a transitional role as such, it can supplement services until the truly comprehensive high school emerges. As this occurs, area vocational (technical) schools should be phased into a post secondary function by serving as a nucleus for additional community colleges.
4. Owing to high mobility in population and in industry, the program of instruction for an area vocational (technical) school should consider postulated national needs rather than those of local industries alone.
5. Because its purpose overlaps other, more vigorous prototypes, plans to develop technical institutes should be curtailed and the resources presently allocated for these institutes should be applied to the development of community colleges.
6. A state-wide system of community colleges should be developed to provide two-year post-secondary education of all types.
7. The basis for establishing jurisdictional boundaries for educational sub-division (school districts) should become more flexible. The current rate of change calls for continuous redevelopment of administriative units;, and boundaries of a political entity seldom define a valid basis establishing the scope and sequenc of educational programs. Even those which are for a time acceptable can expect to become less so.
8. Differences in opinions between education and industrial leaders should be subjected to further study.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hagen, Donald, Lawrence
(Last name) (First name) (Middle name)

Exact Title COMMUNITY COLLEGE FACULTY PERCEPTIONS OF ACADEMICALLY DISADVANTAGED STUDENTS AND FACTORS RELATED TO PERCEPTIONS HELD.

Degree granted Ed.D. Date 1972 No. of pages in report 220

Granted by University of Illinois Urbana, Illinois
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of the study was to assess the favorableness of community college faculty attitudes toward academically disadvantaged students and to identify factors that related to the attitudes hald.

Source of Data and Method of Study

Data were gathered on a semantic differential and questionnaire from all full-time faculty in seven public community colleges selected at random in the state of Illinois

Findings and Conclusions

The conclusions reached were that those faculty who hold the most favorable attitudes toward academically disadvantaged students have the following characteristics. First, they are female and come from lower class precollege socioeconomic backgrounds. Secondly, they hold less than a Bachelor's degree and generally agree, but do not strongly agree with the typical role and function of the community college Thirdly, they have less than one year of junior college teaching experience and their major teaching assisgnment is courses for general education students. Fourthly, they have participated in a course or workshop which focused on a study of disadvantaged students and also have participated in in-service training which focused on problems of teaching disadvantaged students.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hodgson, Paul, M.
(Last name) (First name) (Middle name)

Exact Title INDUSTRIAL AND BUSINESS EDUCAITON IN DELAWARE, A STUDY OF NEED IN KENT AND SUSSEX COUNTIESS.

Degree granted Ed.D. Date 1965 No. of pages in report

Granted by University of Pennsylvania Philadelpphia, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This study was conducted to determine the need, if any, for further development of Industrial and Business Education in the counties of Kent and Sussex, State of Delaware.

Source of Data and Method of Study

The study was confined to the educational and employment activities within the school attendance areas of Kent and Sussex counties. 3,962 pupils enrolled in the ninth, tenth, and eleventh grades were involved. Personal interview with certain of these students, their teachers, principals, and local employers provided much of the basic information for establishment and conduct of the over-all study.

Findings and Conclusions

1. Develop a close-working relationship and seek professional harmony within the ranks of educational leadership.
2. Keep the public continually and fully informed as to present and future needs and developments relating to programs of vocational education in the state.
3. Seek the advice, cooperation, and support of industrialists and labor and business leaders. This can be done effectively through the establishment of general and craft advisory committees.
4. Establish a part-time vocational technical center (shop and laboratory work at the center and academic work in the home high school). Although this is felt to be the most desirable at present, there are two other types of schools which may be considered in light of local needs and interests-the self-contained vocational high school which provides all the courses needed to meet state requirements for graduation, and the comprehensive high school.
5. Select school sites to meet present and projected needs. In making the selection such factors as size and geographic locations should be considered.
6. Encourage school districts to join in the organization and use of the vocational schools. None of the school districts in the two counties is large enough to offer a satisfactory vocational-technical education program. Only when all the districts in a county are joined will there be adequate financial resources and pupil population.
7. Provide a vocational-technical center for an instructional program broad enough to meet the present and anticipated needs of youth and business.
8. Maintain a guidance, placement, and follow-up program relating to vocational-technical education.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE ACIATE · NAITTE

Author Hopper, Charles H

Exact Title AN ANALYSIS AND PROJECTION OF FACTORS INFLUENCING SAFETY IN TECHNICAL EDUCATION PROGRAMS IN FLORIDA

Degree granted Ph.D. Date 1971 - No. of pages in report 168

Granted by Florida State University (Name of institution) Tallahassee, Florida (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This developmental research study established criteria for improving present practices in technical education safety programs in Florida.

Source of Data and Method of Study

A panel of twelve experts in the state of Florida was utilized to conduct a developmental research study by the Delphi Technique.

Findings and Conclusions

The Delphi Technique as developed by the Rand Corporation, Santa Monica, California, was linked with other management tools such as Program Evaluation Review Technique (PERT), Criticcal Path Method (CPM), network planning and computation of activity time estimates in the procedure-design. The resultant model was developed by a panel of experts consisting of diverse background in education, management and industry. The Delphi Technique eliminated personal biases and allowed the inclusion of significant items such as radiation protection, disaster and hurricane plans, as well as considering legislation resulting from new and emerging technological developments.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Ingram (Last name), Maurice (First name), Dean (Middle name)

Exact Title RESOURCE RESEARCH IN INTEGRATED CIRCUITS WITH EMPHASIS ON CURRICULUM DEVELOPMENT FOR INDUSTRIAL ARTS.

Degree granted Ed.D., Date 1971 No. of pages in report 200

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available. Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to develop resource material which may be utilized for curriculum planning about integrated circuits for high school electronics classes in the area of industrial arts.

Source of Data and Method of Study

The data required to analyze the effect which integrated circuits should have on the high school electronics curriculum was obtained through the use of a questionnaire sent to broadly-based manufacturers of integrated circuits. Bibliographical methods were used to develop a historical perspective of integrated circuits. Curriculum materials were developed from technical literature and the information obtained from the survey.

Findings and Conclusions

If curriculum content is to reflect current technology in the electronics industry, approximately 50 percent of the instructional time in the second-year electronics courses should be oriented toward integrated circuitry. Numberous findings were reported concerning the effect which integrated circuits should have on the electronics curriculum. Instructional concepts about integrated circuit fabrication are important to remove the mystery associated with microcircuits. Digital circuitry has become as important as linear circuitry. Instructional materials were developed in accordance with the data collected may be effectively used to introduce integrated circuitry into the curriculum.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Janzen, John, Wayne
(Last name) (First name) (Middle name)

Exact Title A COMPARATIVE ANALYSIS OF TEACHER EFFECTIVENESS OF TEACHER ASSISTANTS VERSUS CERTIFIED DRIVER EDUCATION INSTRUCTORS IN TEXAS.

Degree granted Ed.D., Date 1971 No. of pages in report 100

Granted by Texas A&M University College Station, Texas
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To determine if the driving records of students receiving in car intruction from teacher assistants (paraprofessionals) compare favorably with the records of students taught by certified teachers.

Source of Data and Method of Study

The principle researcher selected fourteen instructional centers which used both typed of instructors and then secured a sample 6,194 students. He reviewed the official driving records for moving violation convictions and accidents and he compared the records of the two groups of students.

Findings and Conclusions

1. Teacher assistant instructed students have significantly less accidents than certified teacher students.

2. Teacher assistant instructed students have significantly less moving violation convictions than certified teacher students.

3. On the basis of accidents and moving voilation convictions, teacher assistants perform on a level tan amount to certified teachers.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Johnson, Raymond, Carl
(Last name) (First name) (Middle name)

Exact Title A PROPOSED INDUSTRIAL ARTS PROGRAM FOR LANGSTON UNIVERSITY.

Degree granted Ed.D. Date 1971 No. of pages in report 212

Granted by North Texas State University Denton, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of the study was to provide a high quality plan for enhancing the industrial arts program at Langston University.

Source of Data and Method of Study

The data were obtained by questionnaires sent to (1) graduates and non-graduates of the industrial arts department at Langston University during the past ten years, 1960 1970, (2) personal interview with chairmen of ten industrial arts departments, and (3) letters and questionnaires to representatives of industry.

Findings and Conclusions

1. Relatively small industrial arts programs connot satisfy all of the demands of industry since the programs are limited in the number and kind of course offerings.
2. The demands and requirements from industry of an industrial arts major should be used in developing industrial arts programs.
3. The industrial arts program at Langston University is in need of revision and upgrading, especially with regard to course offerings, equipment, and special counseling services for industrial arts majors.
4. The present trend is to provide a great deal of flexibility in the industrial arts program that will permit the implementation of change commensurate with the need.
5. If Langston University's industrial arts program is to survive and if it is to play a significant role in this highly competitive and technological world, it must meet the challenge with a curriculum revision that will meet the needs and requirements of its students.
6. Since Langston University is located near other colleges, it is important that its curriculum offerings be unique and not parallel those of near-by institutions
7. There is a great deal of flexibility built around a sound industrial arts program, one that will permit the implementation of changes commensurate with the need.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA ACIATE - NAITTE

Author Jones (Last name), Guy (First name), R. (Middle name)

Exact Title AN ANALYSIS OF TEACHER-STUDENT PERCEPTION OF RATIONALE FOR ENROLLMENT OR NON ENROLLMENT IN SELECTED ELECTIVE COURSES.

Degree Granted Ph.D. Date 1971 No. of pages in report 115

Granted by Florida State University (Name of institution) Tallahassee, Florida (City State)

Where Available Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

A comparison of reasons given by male secondary students and of teacher's prediction of these reasons for enrollment or non-enrollment in selected Industrial Education courses.

Source of Data and Method of Study

Teachers in the Champaign, Illinois schools and two groups of students were used in the population of subjects for this study. Students were divided into an industrial education sample and non industrial education sample. Questionnaire type instrument was scored by IBM 1230 optical scanner with cards and data analyzed by CDC 6400 computer.

Findings and Conclusions

Included in the results of the study are these conclusions There is a significant difference between the reasons given by students and the reasons predicted by the teacher there is no significant difference in the effect selected people had on the student's course selection.

Evaluation of the student questionnaires indicated that staff members would benefit from an in-depth explanation of the Industrial Education program. Continued emphasis should be given to the 'doing' aspect as well as the remunerative facet of Industrial Education.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Keim, William, Earl
(Last name) (First name) (Middle name)

Exact Title THE EFFECT OF AREA VOCATIONAL-TECHNICAL SCHOOLS ON INDUSTRIAL ARTS EDUCATION IN BUCKS COUNTY, PENNSYLVANIA

Degree Granted Ed.D. Date 1966 NO. of pages in report 123

Granted by Lehigh University Bethlehem, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )
University Microfilms, Inc. - Ann Arbor, Michigan

Purpose of Study

The purpose of this study was to examine the effects produced in the rationale for industrial arts education by the emergence of area vocational-technical schools.

Source of Data and Method of Study

Data on these questions were obtained from (1) an examination of curriculum material for industrial arts, (2) analysis of questionnaire responses of 1035 students who had been accepted at a Bucks County, Pennsylvania, area vocational-technical school. (3) analysis of questionnaire responses of 30 industrial arts teachers and eight principals of high schools participating with the area schools, and (4) comparison of achievement test scores of eleventh grade industrial arts students before and after the availability of the area vocational-technical schools.

Findings and Conclusions

The following conslusions seem warranted from the data obtained in this study.

1. Industrial arts education has changed very little in the past 35 years. While there has been a new edition of the state bulletin on industrial arts there has been little change in objectives or content. What changes have taken place have been due largely to the development of new materials and equipment.
2. Since industrial arts education has changed very little, it is not serving the needs of the students in this technological age.
3. The area vocational-technical schools have an effect on the industrial arts programs of the home high schools in terms of enrollment. It is possible there are other effects that were not revealed in this study.
4. The differences between industrial arts and vocational education are not well understood by students.
5. The differences between industrial arts and vocational education are not well understood by teachers and principals. It is also probable that parents, and the public in general, have a poor understanding of the differences of the two areas of education.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author King (last name), Homer (First Name), Pernal (Middle name)

Exact Title A HISTORY OF FEDERAL LEGISLATION RELATING TO SUBCOLLEGIATE VOCATION EDUCATION: 1900-1933

Degree Granted Ed.D., Date 1934, No. of pages in report 395

Granted by University of Southern California (name of institution) Los Angeles, California (City, State

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this dissertation was to search out and interpret in the light of later development those phases of vocation education of less than college grade that led to Congressional action. This type of vocational education has usually been designated as sub-collegiate. (1) The isolation of those problems whose solution seemed to involve Federal aid to vocational education of less than college grade. (2) The determination of the sources to which Congress looked for aid in solving the problems connected with vocational education. (3) The consideration of alternate and supplementary solutions of the foregoing major problems. (4) Congressional opinion on the success of Federal aid after such aid had been extended for several years. (5) The current trends (1930-33) of Congressional thought with respect to Federal aid for vocational education. (6) The consideration of the internal and external forces and factors operating upon Congress to bring about the modification, enlargement, or destruction of the movement.

Source of Data and Method of Study

The sources of material consisted largely of the publications of the Federal Government, the publications of important national organizations, and the writings of certain outstanding leaders or opponents of the vocational education movement. These raw materials were classified in such a way as to provide definite contributions to each of the six major phases of the problem, while at the same time giving consideration to the chronological sequence. The six major phases in themselves tend to fall into a rough chronological order of development, since each is an outgrowth of the preceding phase.

Findings and Conclusions

(1) Congress was confronted with certain social-economic problems that seemed to demand Federal attention. These problems dealt primarily with food, labor international competition, home life, and social unrest. (2) The need for solution of these major problems caused Congress to investigate not only the several social institutions of the political subdivisions of the United States, but also the activities of private instittions and the theories and philosophies of certain prominent men of the time. More particularly, Congress looked to those most progressive nations of Northwestern Europe for possible clues to the solution of these problems. (3) Many bills proposing solutions of the problems were considered before a comparatively simple and satisfactory measure was adopted in 1917. Following that date several supplementary measures have been proposed, a number of which Congress has seen fit to adopt.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Le Blanc (Last name), Darrell (First name), Robert (Middle name)

Exact Title JUNIOR HIGH SCHOOL STUDENTS AND UNIONS: INFORMATION AND ATTITUDE ASSESSMENT

Degree Granted Ph.D. Date 1971 No. of pages in report 160

Granted by Purdue University (Name of institution) Lafayette, Ind. (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to develop a unit or instruction on American labor unions. Instructional content was designed for use in the seventh and eighth grade industrial arts setting. A secondary objective was the evaluation of the instructional unit.

Source of Data and Method of Study

The instructional unit consisted of five sections: (1) Unions; what are they? (slide-tape mode), (2) Unions: how they operate. (lecture mode), (3) Unions: obtaining a contract. (lecture mode), (4) Working with the contract; and (5) Future of unions. (programmed instruction mode).
Three experimental situations were utilized, with a total of 170 industrial arts students. Experimental and control groups were pre-tested, using criterion tests and attitude assessment instruments. Following the five-day treatment for the experimental group, both groups were post-tested with the same instruments.

Findings and Conclusions

There was a significant difference between the treatment group and the control group in each situation. Statistically significant differences were found on both the criterion and attitude assessment instruments.
There was no significant difference between grade levels as measured by either the criterion test or the attitude assessment instrument.
There were significant differences between some but not all schools on the criterion test and on the attitude assessment instrument.

It was concluded that the instructional unit developed for this study was effective in teaching an understanding of labor unions in an industrial arts setting. A significant shift in attitude took place as a result of exposure to the instructional unit.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lean, Arthur, Edward
(Last name) (First name) (Middle name)

Exact Title THE ORGANIZATION OF POST-HIGH SCHOOL EDUCATION IN FLINT.

Degree Granted Ph.D. Date 1948 No. of pages in report 185

Granted by The University of Michigan Ann Arbor, Michigan
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

A socio-educational study emphasizing enrollment and curricular aspects of post high school education in the city of Flint and Genesee County. Considers preparatory and terminal needs as well as general education for older youth and adults.

Source of Data and Method of Study

Questionnaires were sent to Flint Junior College and Genesee County high school senior students to determine their appraisals of existing opportunities, plans for further education, curricular desires, and attitudes toward creation of, and attendance at, a four-year college in Flint. Another survey secured information on the number of Genesee County resident students attending the various Michigan institutions of higher learning.

Findings and Conclusions

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lien (Last name), David (First name), Alvin (Middle name)

Exact Title PROBLEMS AND PROFILES OF ADMINISTRATORS OF OCCUPATIONAL EDUCATION IN RURAL WESTERN PUBLIC COMMUNITY COLLEGES.

Degree granted Ed.D. Date 1971 No. of pages in report 102

Granted by U.C.L.A. (Name of institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To determine the profiles, problems, programs, and administrative ranking of the administrators of occupational education in rural western public community colleges.

Source of Data and Method of Study

The mass-survey method of research was employed. Questionnaires were mailed to the directors of occupational education at the 40 community colleges meeting the definition or rural, public and western. In addition, 7 of the colleges were personally visited to corroborate and supplement data furnished by the questionnaires.

Findings and Conclusions

The composite administrator is 43 years old, has the title of director, has an undergraduate major in agriculture and a master's degree in vocational education.

The occupational program offered at his college is limited, but probably offers auto mechanics, data processing, agriculture, distributive education, electronics, and the office occupations. In addition, several MDTA or other short-term programs are in progress.

The major problem confronting him as he attempts to implement his program is the lack of status and prestige for vocational education. Second most important is his feeling that the Federal government is not as effective a force in vocational education as it might be, followed by the lack of vocational guidance meeting the critical needs of the area.

As a result of the study, it can be concluded that about one-half of the colleges in the population offer a program comparable to similarly sized colleges in urban areas, and the program is administered by an adequately prepared administrator. The other one-half of the colleges seriously need to reevaluate their commitment to occupational education, both in terms of quality of program and the qualifications of their occupational administrator.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE AIAA - ACIATE - NAITTE

Author Lucy, John, Howard
(Last name) (First name) (Middle name)

Exact Title A DESCRIPTIVE STUDY OF EMERGENCY TEACHER CERTIFICATION PROGRAMS IN INDUSTRIAL ARTS EDUCATION IN OHIO AND RELATED PROGRAMS THROUGHOUT THE UNITED STATES.

Degree granted Ph.D. Date 1971 No. of pages in report

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This study assessed the status of emergency certification programs. How effective was the Ohio EPDA Program. What was the geographic locations, purposes, needs, characteristics, and intended outcomes of emergency certification programs. What were the expressed attitudes of industrial arts teacher educators concerning the use of emergency certification programs?

Source of Data and Method of Study

The research process in this study involved the use of four survey instruments.

Findings and Conclusions

The following conclusions were based upon the analysis of data and the findings of this study.

1. The Ohio EPDA Program was effective in its efforts to prepare and employ emergenc certified industrial arts teachers with minimal teaching and technical skills.
2. A large portion of the EPDA teachers completed college courses during their first year of teaching that assisted them in meeting provisional certification.
3. Due to the presence of minimal teaching salaries, emergency certified teachers need financial aid to meet the demands of provisioanl certification.
4. Since the EPDA Program was an emergency measure, this effort should be discontinued as soon as the teacher shortage has been met.
5. The majority of emergency certification programs in industrial arts education have continued as limited or informal efforts despite the availability of federal funding through EPDA.
6. Although some teacher educators have been quite vocal in their opposition to the use of emergency certification programs, a number of these leaders have been willing to accept this practice for limited period of time when faced with local teacher shortages.
7. Governmental agencies need to become involved in the development of teacher education programs to prepare professional staff for the rural and urban areas.
8. Local school administrators need to provide additional professional and financial support for emergency certified teachers.
9. The development of emergency certification programs has provided industrial arts teacher educators with one additional option to the conventional patterns of the past.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACTATE - NAITTE

Author MacDonald (Last name), Manley (First name), Elroy (Middle name)

Exact Title A STUDY OF CHANGES IN THE EMPLOYMENT STATUS OF YOUTH IN DETROIT

Degree Granted Ph.D. Date 1944 NO. of pages in report 409

Granted by The University of Michigan (Name of institution) Ann Arbor, Michigan (City, State)

Where Available Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

A study of the changes in employment status of youth in Detroit, with implications for social, educational, and vocation guidance.

Source of Data and Method of Study

The study used four sources of data:

1. Studies made by others.
2. Statistical data concerning youth employment in Detroit from 1870 to 1940 (U.S. Census reports)
3. Types and numbers of employment permits issued in Detroit between 1921 and 1940.
4. Placement data from the Division of Guidance and Placement of the Detroit Public School system during the 1935-36 to 1939-40 school years.

These data were studied to determine the trends and changes affecting youth employment in Detroit.

Findings and Conclusions

The findings indicate that there was a marked increase of unemployed youth brought about primarily by changes in employers' selection requirements and mandatory school attendance laws. Education was affected in that the high school was expected to assume responsiblility for greater numbers of students with different goals than those to which they were accustomed. The guidance services were faced with placement demands not normally required of them.

The study concluded that expansion was necessary in the guidance services as well as major curricula changes in the high school. Greater cooperation between industry and education was needed. The apprenticeship system needed modification, in addition to other channels by which employment would be secured.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Martin, Waldo, Dean
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION OF OCCUPATIONAL AREAS FOR EMPHASIS IN VOCATIONAL EDUCATION PROGRAM PLANNING.

Degree granted Ed.D. Date 1970 No. of pages in report 130

Granted by University of Illinois Urbana-Champaign, Illinois
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The first was to develop a technique for use in conjunction with other methods when determining which occupational areas to consider in planning educational programs for high school age youth. The second was to apply the technique and identify the occupational areas that should be considered when planning educational programs across the communities included in this study.

Source of Data and Method of Study

Seventeen public and one parochial school districts, in fifteen states constituted the sample. (This was the ES-70 network). Community leaders and school district staff members were interviewed in each community. Essentially all sub-professional occupations were grouped into 39 occupational categories and a card sort procedure was used in a personal interview situation to obtain the interviewee's interpretation of local manpower demands and of student needs.

Findings and Conclusions

1. Certain of the occupational categories should be emphasized in a particular community because of local manpower demands or student need or both.
2. Certain of the occupational categories satisfy the manpower demands and student needs across the eighteen communities and thus, should be considered for emphasis in any community, when planning vocational programs.
3. Certain of the occupational categories described student needs but not manpower demands and visa versa. In other words, a vocational program in a particular occupational category would tend to satisfy the needs and interests of students, however the manpower demands in this particular occupational category were low.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE · AIAA - ACIATE - NAITTE

Author Mellinger (Last name), Barry (First name), Lee (Middle name)

Exact Title AREAS OF CONCERN IN TECHNICAL INSTITUTE ACCREDITATION.

Degree granted Ph. D. Date 1972 NO. of pages in report 224

Granted by Purdue University (Name of institution) Lafayette, Indiana (City, State)

Where Available. Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to identify areas of concern in technical institute accreditation. Specifically, the study sought to determine the extent to which areas of concern: (1) stemmed from difficulties experienced by technical institutes in complying with accreditation requirements which they considered appropriate or inappropriate, (2) were related to the extent of experience of technical institute officials with the accreditation process, and (3) were related to selected accreditation and institutional variables. An attempt was also made to identify the helpfulness of sources in achieving or maintaining regional accreditation.

Source of Data and Method of Study

The population included all (101) two-year degree-granting technical institutes in the regions served by two regional accrediting agencies.

Findings and Conclusions

The findings were:

1. Areas of concern in technical institute accreditation stemmed both from divergent philosophical points of view and from difficulties encountered by technical institutes in complying with accreditation requirements.
2. Technical institute officials almost unanimously held a favorable attitude toward regional accreditation and considered it an effective process for improvement of technical institutes.
3. The extent of actual experience with accreditation did not appear to be a major distinguishing factor in the identification of problem areas.
4. Areas of concern varied depending upon such factors as type of accrediting agency enrollment, scope of educational program, age of institution, types of accreditation held, and population of area served.
5. Certain techniques were particularly helpful to technical institutes in preparing for accreditation. These were services of accrediting agencies or required accreditation procedures.
6. The areas of greatest concern generally resulted from the failure of technical institutes to develop and follow formal institutional policies and procedures, rather than from quantitative shortcomings as inadequate library holdings and physical facilities.
7. Technical institute officials generally felt that regional accrediting agencies did not fully understand the technical institute.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Miller, Larry, Reed
(Last name) (First name) (Middle name)

Exact Title THE COMPARISON OF THE COGNITIVE ACHIEVEMENT AND AFFECTIVE BEHAVIOR OF STUDENTS ENROLLED IN THE INDUSTRIAL ARTS CURRICULUM PROJECT PROGRAM WITH STUDENTS ENROLLED IN CONVENTIONAL INDUSTRIAL ARTS PROGRAMS.

Degree granted Ph.D. Date 1971 No. of pages in report

Granted by The Ohio State University Columbus, Ohio
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This study was focused toward the collection of evidence that attested the worth of the instructional system that was developed for the IACP project.

Source of Data and Mehtod of Study

For this evaluation study, a post test only design was used with intact classroom groups in five field evaluation and five demonstration centers of the IACP and a comparable group of students taking conventional industrial arts courses. A total of 3128 students participated in the study. Four test instruments were used as criterion measures.

Findings and Conclusions

The analysis of data collected in the study revealed that students enrolled in "The World of Construction" course in the field evaluation and demonstration centers performed at a significantly higher level than did students enrolled in conventional industrial arts on the The World of Construction Achievement Test-Comprehensive Exam. Furthermore, students enrolled in "The World of Manufacturing" course had a higher level of cognitive achievement than did students enrolled in "The World of Construction" course and the conventional industrial arts programs on The World of Manufacturing Achievement Test-Comprehensive Exam.

In investigating the students on cognitive knowledge of conventional industrial arts as measured by the Cooperative General Industrial Arts Test, the data analysis revealed that the students enrolled in the IACP program performed at the same level as did students enrolled in conventional industrial arts courses.

The analysis of data of the sample of students that completed the General Scale of Attitudes of Junior High School Industrial Arts revealed that the groups were not statistically different in the overall level of attitudes a measured by the attitude scale.

The central conclusion drawn from the analysis of data in the study was that student after completing the IACP instructional system achieved as well as conventional industrial arts students.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Mills (Last name), Earl (First name), Sidney (Middle name)

Exact Title AN EVALUATION OF STRATEGIES APPLIED IN AN EXPERIENCED TEACHER FELLOWSHIP PROGRAM FOR INDUSTRIAL EDUCATION TEACHERS

Degree Granted Ed.D. Date July 1971 No. of pages in report 230

Granted by Wayne State University (Name of Institution) Detroit, Michigan (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. (x)

Purpose of Study

The purpose of the study was to evaluate the three ExTF Programs conducted by the Department of Industrial Education at WSU during the 1967-68, 1968-69, and 1969-70 academic years.

Source of Data and Method of Study

A preliminary study was conducted 1) to determine which criteria the participants in the program believed would best describe the effectiveness and efficiency of the program, and 2) to select the methodology most appropriate. This was conducted through small group conferences and individual interviews with the Fellows who participated in the program. As a result of these meetings it was agreed that all the participants should be contacted through a mail instrument and that at least one-third be contacted in small groups on individual meetings. One-hundred percent of the participants participated in the study.

Findings and Conclusions

Based on the results of the study the following conclusions were made:

1. The professional activities of the Fellows significantly increased after their participation in the ExTFP, particularly in the areas of publishing and their involvement in national educational associations.
2. As a result of the ExTFP a significant number of Fellows raised their educational and vocational goals, with a large number going on for a doctorate and many indicating the desire to move into an administrative position.
3. All the objectives were appropriate for graduate programs in industrial education, and there were provisions in each of the three programs so that the Fellows could achieve each of the objectives.
4. All twelve strategies were rated by the Fellows as being successful in achieving the objective of the program.
5. The most successful and vital strategies to the success of the program were:
    - a) conferences with national leaders
    - b) fellowship room
    - c) en bloc treatment
    - d) work in instructional technology

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Nichols, JR. (Last name), George (First name), Vernon (Middle name)

Exact Title AN EXPLORATORY STUDY OF THE CORRELATION AMONG SELECTED PSYCHOLOGICAL FACTORS AND THE UNSAFE BEHAVIOR OF STUDENTS IN METALWORKING.

Gegree granted Ed.D. Date 1971 No. of pages in report 184

Granted by Texas A&M University (Name of institution) College Station, Texas (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this investigation was to examine the relationship between: (1) selected psychological factors and (2) the unsafe behavior of students in performing laboratory activities in metalworking. The correlation between specific psychological factors included in the study was also examined.

Source of Data and Method of Study

The instruments used to examine the psychological factors consisted of: (1) selected standardized tests and (2) specially developed measuring instruments. Criteria representing the unsafe behavior of students were based on the number of (a) accidents, (b) minor injuries, and (c) unsafe acts they experienced during selected periods of time. Records of these incidents were accumulated by observing their occurrence on recorded video tapes of behavior.

Findings and Conclusions

The statistical analysis of the data led to the folowing conclusions:

1. There was no significant correlation between the number of accidents incurred by students in metalworking and the psychological factors measured in this research.
2. A low positive correlation was obtained between the number of minor injuries experienced by students and their knowledge of metalworking. This criteria of behavior did not appear to be related to any of the other psychological factors as they were measured in the study.
3. The number of unsafe acts committed by students was found to be negatively related to students' achievement in metalworking. No significant correlation was found between unsafe acts and the other psychological factors examined.
4. The ability of students to perceive hazards was determined to be positively correlated with their experience in metalworking. This ability did not seem to be related to the other psychological factors that were measured.
5. Students' aspiration to behave safely was found to be positively related with their measured achievement in metalworking and their ability to perceive spatial relationships. There appeared to be no significant correlation between safety aspiration and the other psychological factors studied.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTEE

Author Pfahl (Last name), Alvin (First name), Kenneth (Middle name)

Exact Title A STUDY OF ATTITUDE AND TEACHING PERFORMANCE OF DEGREE AND NON-DEGREE TEACHERS IN INDUSTRIAL EDUCATION

Degree granted ________ Date 1970 No. of pages in report 96

Granted by Oregon State University (Name of institution) Corvallis, Oregon (City, State)

Where Available: Microfilm (x) Microfish ( ) E.R.I.C. ( )

Purpose of Study:

The purpose was to determine whether the amount of formal education Industrial Education teachers have completed does affect their:

1. Attitude toward teaching, and
2. Performance in the classroom.

Source of data and method of study:

One hundred forty Oregon industrial teachers self-examined themselves with the Vocational Industrial Teacher Attitude Survey. Each teacher had a class of his students rate his performance in the classroom.

Findings and Conclusions:

1. The results of this study indicated there was no difference in attitude toward teaching among the experimental groups. According to the VITAS scores in this study, a baccalaureate degree does not indicate a substantially different or more positive attitude toward teaching industrial education.

2. Non-degree Oregon industrial education instructors received better performance ratings than instructors possessing a baccalaureate degree. ($p < .10$)

3. Industrial education instructors having completed more than 24 hours formal preparation but less than a baccalaureate degree had a higher correlation of attitudes toward teaching compared with teaching performance than the two other experimental groups.

4. This study has produced evidence that Oregon Industrial Education students taught by non-degree instructors are generally not receiving inferior instruction compared with those being taught by teachers with a baccalaureate degree.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Rebhorn (Last name), Eldon (First name), Arvid (Middle name)

Exact Title THE DEVELOPMENT OF PROCEDURES AND CRITERIA FOR ASSESSING THE EFFECTS OF INSTRUCTION FOR A PSYCHOMOTOR TASK.

Degree granted Ed.D. Date 1972 No. of pages in report 157

Granted by University of Illinois (Name of institution) Urbana-Champaign, Illimois (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

Criteria were developed, analyzed, and compared in the search for assessments of student behavior which would reflect the effects of instruction involving a psychomotor task. This study was initiated to investigate criteria to be useful for further research into teaching methods in the psychomotor domain.

Source of Data and Method of Study

Three levels of manipulation in video taped demonstrations of cutting with a coping saw constituted three treatments. The paper and pencil exam responses, the products of the subjects' performances, and the students' actions as being appropriate to the instruction were evaluated with the aid of the criteria established. The student behaviors in the performance of the task were also quantified by being classified into categories.

Findings and Conclusions

The procedures and criteria were satisfactorily used; reliability coefficients were: exam, $r = .40$; product ratings, $r =90$; appropriate action evaluations, $r = .79$; behavior categories, three with r of .89 or above, three between r of .65 and .73 and four below r of .60. In analyzing the correlations of assessments of the criteria, the exam scores compared to the product ratings, $r = .36$; actions, $r = .64$. The analysis of variance statistic to determine treatment effect resulted in nonsignificant differences for the three achievement criteria. The behavior patterns likewise did not result in directional patterns indicative of the treatment effect. Further research is needed to refine or redefine the criteria which will reflect the effects of instruction involving psychomotor tasks.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Reeser (Last name), George (First name), William (Middle name)

Exact Title THE RELATIVE EFFECTIVENESS OF SELECTED INSTRUCTIONAL MEDIA FOR STIMULATING STUDENT AWARENESS OF AND INTEREST IN THE CONSTRUCTION INDUSTRY

Degree Granted Ph.D. Date Dec. 17, 1971 No. of pages in report 210

Granted By The Ohio State University (Name of Institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To assess the effectiveness of various teaching methods in presenting occupational information to junior high school students.

Source of Data and Method of Study

Experimental study using three methods plus a control group. Methods used were coordinated tape/slide, independent reading booklets and teacher-lecture. Research design was by a modified version of the Campbell and Stanley Design 10 non-equivalent control groups without randomization.

Findings and Conclusions

The analysis of data of selected media indicates a positive and differential effect upon student achievement in occupational knowledge of the construction industry. Students who were taught by the coordinated slide-tape method of instruction made significant achievement gains. The students who were taught by the individual booklet and teacher-lecture methods made achievement gains but they were not significant.

The analysis of the data indicates that selected media, in the manner in which each of several were used in this study, does not have a positive and differential effect upon student interest in the construction industry. The coordinated slide-tape method resulted in a larger overall increase in student interest than did the individual booklets or teacher-lecture methods. The increases were not statistically significant.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Roberts (Last name), Edward (First name), Ruel (Middle name)

Exact Title A HIGH SCHOOL WORK EXPERIENCE PROGRAM .
AN ANALYSIS OF SELECTED PUBLICS' ATTITUDES

Degree granted Ed. D Date 1971 NO. of pages in report 167

Granted by U.C.L.A. (Name of institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To investigate, measure, and analyze attitudes of six groups: (1) Students; (2) Parents; (3) Employers; (4) Teachers; (5) Administrators; and (6) Graduates who were involved in the various phases of the Work Experience Education Program as it exists in the Santa Ana Unified School District.

Source of Data and Method of Study

Six groups were enlisted to express their attitudes concerning statements involving the administration, operation, philosophy, and curriculum surrounding the Work Experience Program. The responses were tabulated as to the degree of agreement each respondent held toward each of the statements presented.

Findings and Conclusions

1. Outstanding features of the Work Experience Program did emerge and were identified favorably by the six groups. Those involved in the Work Experience Program all view it favorably and are very satisfied with its organization and operation. The Work Experience Educational Program does in fact have a strong and favorable "product image." The findings brought forth by this study will assist in the modification and improvement of the Work Experience Program.
2. The Work Experience Educational Program is a good medium to introduce students to the world of work. The Work Experience Program does aid students in developing favorable job attitudes, job knowledge, and skills. The relative value of the Work Experience Program is the true-to-life exposure to the world of work.
3. Overall alignment of the five major functional categories in rank order of most favorable attitudes expressed were placed in this order: (a) Teachers; (b) Administrative Operations: (c) Curriculum; (d) Students, and (e) Philosophy.
4. Eighty-six percent of the respondents agreed or strongly agreed that almost every student, including the college-bound student, during his high school years should experience live on-the-job Work Experience in his or her area of career interest.
5. Sixty nine percent of the respondents agree or strongly agree that almost all preparation for going to work should take place before graduation from high scho
6. Seventy-four percent of the respondents strongly agree or agree that today's high school program should specifically train students to go to work.
7. Ninety-three percent of the respondents strongly agree or agree that current job availability and job placement information should be made available to all high school students.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Rosenquist, Barbara, Ann
(Last name) (First name) (Middle name)

Exact Title THE IMPACT OF COMPANY TRAINING PROGRAMS ON REDUCING THE ALIENATION OF THE HARD-CORE UNEMPLOYED.

Degree granted Ph.D. Date 1971 No. of pages in report 192

Granted by U.C.L.A. Los Angeles, California
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This research was based on the premise that the dynamics of poverty have rendered the individual powerless in dealing with the major institutions of society and that this condition must be reduced if the company program is to successfully place and retain workers.

Source of Data and Method of Study

The research model assumed that the "hard-core" eimployee becomes engaged in an organizational experience when he enters the company. The design attempted to isolate the important organizational inputs into this process and to assess their effect on the alienated black employee. Information was obtained through personal interviews with employees and with centrally involved company management personnel, in eight companies in the greater Los Angeles area.

Findings and Conclusions

The findings indicated that the characteristics of the average employee interviewed were not unlike those found in other population samples of the hard-core unemployed. Significantly, however, a high sense of powerlessness prevaded this group, such that the employees had little confidence that by their own actions they could influence personal or social events in their lives. As a consequence, a large group was disaffected.

The participating companies were found to employ more of a conventional and autocratic leadership style than one which is democratic and modern. Investigation by level of management indicated that the lower the management level of the respondent the more true this was.

The major question addressed by this research was whether style of leadership had a significant effect in reducing employee alienation. The results of this analysis indicated that older employees, and employees with less than a high school education had higher alienation in companies employing a conventional and autocratic leadership style. Employees without a conviction record had lower alienation in companies employment a more democratic and modern leadership style. Additionally, it was found that the employee's sense of pwerlessness negatively affected his attitude toward other aspects of the organizational experience.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION

JOINT RESEARCH COMMITTEE - AIAA-- ACIATE - NAITTE

Author Sonny, Jacob, none
(Last name) (First name) (Middle name)

Exact Title TECHNOLOGICAL CHANGE IN THE U.S. MACHINE TOOL INDUSTRY.

Degree granted Ph.D. Date 1971 No. of pages in report 224

Granted by New School for Social Research New York, New York
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to identity the pattern and problems of technological change in the Machine Tool Industry.

Source of Data and Method of Study

The industry has a significance out of proportion to its share in national income, since technological change within it influences the cost of production in many other sectors. The causes of the apparent technological drag on the industry were investigated and critically evaluated. In an attempt to overcome the problems introduced by monetary measurements in the estimation of productivity change, a physical measure of output and capital input--hotepower rating of machine tools--was introduced.

Findings and Conclusions

The rate of neutral technological change is not significantly different from zero. The reason is seen to be the technological drag on the industry arising from slow replacement of aged machine tools owing to the durability of the product and the impact of widely fluctuating demand for the industry's output is stip with fluctuatin aggregate demand and the war-peace cycles of economic activity. The incentives for standardization and modularization of components of machine tools, widely practiced elsewhere in the world, are found to be lacking here due to a combination of economic and institutional factors. Modernization of the machine tool industry in terms of production technology and organization will have a restraining effect on the intractable inflationary problem, by narrowing the gap between productivity levels and the prevailing high cost of production in all machinery-using sectors of the previously suspected weaknesses of the Cobb-Douglas, CES and related production functions as conceptual tools.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Soltys, Robert, George
(Last name) (First name) (Middle name)

Exact Title THE USE OF A "PATTERN SEARCH TECHNIQUE" AS A TOOL FOR IDENTIFYING THE CHARACTERISTICS OF VOCATIONAL-TECHNICAL STUDENTS ATTENDING A TWO-YEAR PUBLIC COMMUNITY COLLEGE.

Degree Granted Ed.D. Date 1971 NO. of pages in report 176

Granted by U.C.L.A. Los Angeles, California
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To identify the student characteristics essential to the development of institutional goals and educational goals for vocational-technical students.

Source of Data and Method of Study

Sixty student characteristics were defined and categorized as indices of student talent, along with individual family and financial variables. A questionnaire listing these sixty "raw characteristics" was administered to 405 randomly selected students (approximately 20 percent of the total student enrollment) at Rio Hondo College, Whittier, California.

Findings and Conclusions

1. The pattern search technique provides an opportunity for community college staff members to visualize characteristic patterns of students and hence to adopt effective programs for the wide range of desires, abilities, and needs of the students
2. Once the student characteristics are defined curricula can be developed in such a way as to be meaningful in terms of the way people learn.
3. The finished characteristics in this study have been selected on the basis of their potential yield in terms of identifying curriculum building.
4. The statistical material in this study translated printout information into a linguistic form on the assumption that the typical reader is more likely to be wordminded than number-minded.
5. The statements that appeared in the printout were presented in a uniform order to assist the reader in developing a sense of pattern that will give insights about trends, courses, and a sense of context and patterns.
6. This study was a stimulus to more creative inquiry or at least to act as a prod for the investigator to obtain coverage of variables that have heretofore not been used in studies.
7. This study can be regarded as a summary of suggested statistical statements about co-occurrences among variables as these variables apply to the universe itself.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Stanfield, Foster, Ames
(Last anme) (First name) (Middle name)

Exact Title A COMPARATIVE STUDY OF THE EFFECTIVENESS OF DRAFTING PROBLEMS RELATED AND UNRELATED TO STUDENT INTEREST.

Degree granted Ed.D. Date 1971 No. of pages in report 123

Granted by Texas A&M University College Station, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. (x)

Purpose of Study

To study the effect upon students' learning and attitude when the drafting problem is related to students' interest.

Source of Data and Method of Study

The data was obtained through classroom research using parallel equated groups.

Findings and Conclusions

1. There was no significant difference at the five per cent level in the effectiveness between experimental and control groups in initial learning.

2. There was no significant difference in the relative effectiveness between the experimental and control groups in overall retention.

3. There was no significant difference at the five per cent level in attitude when taught by either the experimental or control method.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Stokes (Last name), Vernon (First name), L. (Middle name)

Exact Title A STUDY OF NONDESTRUCTIVE TESTING AND INSPECTION PROCESSES USED IN INDUSTRY WITH IMPLICATIONS FOR PROGRAM PLANNING IN THE JUNIOR COLLEGES OF TEXAS

Degree Granted Ed.D. Date Aug. 1971 No. of pages in report 211

Granted by North Texas State University (Name of institution) Denton, Texas (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The problem was obtaining relevant subject matter pertaining to nondestructive testing and inspection processes used in industry for program planning purposes in the junior colleges of Texas.
Specifically, the study attempted: (1) to obtain information including desirable subject matter for an educational program pertaining to nondestructive testing and inspection processes, (2) to determine the degree of emphasis that was to be placed on each selected subject, (3) to determine if there was a significant difference in emphasis placed on each selected subject by technical personnel from manufacturing and service companies.

Source of Data and Method of Study

The questionnaire consisted of 262 items of subject matter pertaining to nondestructive testing, inspection, and evaluation of engineering materials. The technical areas reflected the main testing and inspection processes and included: Penetrant, Magnetic Particle, Eddy Current, Ultrasonic, and Radiographic.

Findings and Conclusions

Technicians should be proficient in all phases of nondestructive testing.
Ultrasonic testing is the fastest growing method and should be supported with research while Penetrant is the least growing method.
Radiographic processes were used by most respondents while Eddy Current was used the least, probably due to its less importance according to respondents.
Research is needed in twenty-three separate areas of knowledge in order to increase the effectiveness of nondestructive testing.
The use of twenty-four additional forms of energy is needed in support of nondestructive testing.
Twenty-two related manufacturing and service industries require nondestructive testing support. Metallurgical functions require this support more than any other branch of industry.
There is a current shortage of nondestructive testing and inspection technicians.
Other forms of energy such as acoustic emission and hydrostatic are needed during testing to increase the effectiveness of the testing and inspection processes.
Related manufacturing fields must use more of the nondestructive testing and inspection processes.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Stuteville, Claude, Edgar
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE EDUCATIONAL BACKGROUND AND SUBJECT AREAS TAUGHT BY INDUSTRIAL ARTS TEACHERS IN OKLAHOMA

Degree Granted Ed.D. Date Aug. 1971 No. of pages in report 123

Granted by North Texas State University Denton, Texas
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This study is concerned with determining the relationship between curriculum offerings in industrial arts and the academic preparation of industrial arts teachers in the public secondary schools in Oklahoma. Specifically, this study wanted: (1) to determine if the industrial arts teachers in Oklahoma have at least six semester hours preparation in the subject areas they were teaching; (2) to determine to what extent variations existed in the preparation of industrial arts teachers in the secondary schools of Oklahoma; and (3) to determine the nature of industrial arts instruction in the Oklahoma public secondary schools.

Source of Data and Method of Study

The study utilized industrial arts teachers who were teaching in grades seven through twelve in Oklahoma. Also the study was limited to those teachers who were graduates of an Oklahoma college or university.

Findings and Conclusions

Of the 247 industrial arts teachers participating in the study, 215 held the standard teaching certificate. Of the 247 teachers 234 had undergraduate majors in industrial arts, and only 13 or 5.27 per cent had undergraduate majors in a field other than industrial arts.
The academic preparation of industrial arts teachers was concentrated in the areas of woodworking and drafting.
In the area of electricity-electronics, power, plastics, photography, and printing, the majority of the teachers had three semester hours or less of preparation.
Of all 247 industrial arts teachers, 45.47 per cent of them considered woodworking as a teaching specialty.
Of the industrial arts teachers 93.01 per cent had some type of industrial work experience.
Industrial arts programs in the Oklahoma public secondary schools are based almost entirely upon the traditional areas of Woodworking and Drafting.
Industrial arts teacher training programs continue to be strong in the traditional curriculum areas of Woodworking, Metalworking, and Drafting.
The teachers with a master's degree received limited preparation in their teaching field at the graduate level.
There is a need for course and program standardization within the industrial arts programs in Oklahoma secondary schools and colleges.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA · ACIATE · NAITTE

Author Ullery (Last name), Jesse (First name), William (Middle name)

Exact Title A COMPARATIVE ANALYSIS OF SELECTED STUDENT CHARACTERISTICS AND VOCATIONAL COOPERATIVE PROGRAMS.

Degree granted Ed.D., Date 1971 No. of pages in report 199

Granted by University of Illinois (Name of institution) Urbana-Champaign (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

1) Develop a method for identifying and describing groups of students excluded from cooperative work-education (CWE) programs; 2) Develop a comparative analysis, using selected characteristics, of students admitted to and excluded from, CWE, 3) Assess the student selection criteria and practices, and the overall operations, of a system CWE program; and 4) Determine the extent to which the program was responsive to school system policy, and to national goals and priorities.

Source of Data and Method of Study

Four high schools and 4,000 students, Identified CWE sub-groups and 4 Non-CWE sub-groups for analysis. Study was descriptive in nature and used non-parametric analysis.

Findins and Conclusions

The characteristics of students excluded overtly or covertly from the school system's CWE programs strongly suggest that many students were denied admission to CWE on the basis of such factors as socio-economic class, race, age, sex, drop-out proneness, low school achievement, absenteeism, and similar or related factors. Comparative consideration of these factors point to the inescapable conclusion that Non-CWE students--as defined for the purposes of the study--fit the description of the population generally designated for priority assistance in terms of national goals and priorities, and the population most specifically in need of the kind of help whic can be provided by CWE and vocational education. The converse of this unhappy paradox can be stated even more precisely: students excluded from CWE by the very criteria that should be used to admit them to these programs. Students for whom CWE and other special vocational education programs are intended and best able to serve, are clearly screened out in the selection process, whether by selection procedures that are inappropriate or by practices that appear highly biased. The method appears replicable and generalizable to other areas of vocational education. The findings may be generalizable as well.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Wanger, Ruth, Schwartz
(Last name) (First name) (Middle name)

Exact Title THE RELATIONSHIP OF SELECTED VARIABLES TO THE PERFORMANCE AND PERSISTENCE OF CAREER-ORIENTED COMMUNITY COLLEGE STUDENTS

Degree granted Ph.D. Date 1971 No. of pages in report

Granted by
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The major purpose of this study was to determine the relationship between performance on several predictor variables--high school rank in class, high school grade-point average, American College Testing Program (ACT) scores, and General Aptitude Test Battery (GATB) scores; and three criterion measures--overall grade-point average, grade-point average in general education courses, and grade-point average in career-oriented courses.

Source of Data and Method of Study

The sample consisted of 213 full-time students who enrolled in career programs as full-time entering freshmen for the fall semester, 1968, on the Rockville, Maryland, campus of Montgomery College.
The computerized procedure of data analysis involved computing zero order correlations between each predictor variable and each criterion measure. For each criterion measure, regression analyses were performed from which multiple correlation coefficients were derived, based on the predictor variables used in combination. To investigate persistence patterns, the predictor and criterion variables were utilized in discriminant function analyses.

Findings and Conclusions

Following are the conclusions and findings:

1. High school rank in class is the best single predictor of performance for career-oriented students.
2. High school achievement data are more predictive of overall performance in career oriented programs than scores on the standardized aptitude tests.
3. Improvement in the level of prediction for overall grade-point average can be achieved by utilizing the predictor variables in combination.
4. Different combinations of the predictor variables are required to yield the highest level of predictability in general education courses and career-oriented courses.
5. The predictor variables are more effective in forecasting performance in general education courses than in career-oriented courses.
6. The GATB aptitude tests are more predictive of performance in career-oriented programs than the ACT subtests.
7. Different combinations of the predictor variables are required to yield the highest level of predictability for males and females.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Waitkus, Lorin, Victor
(Last name) (First name) (Middle name)

Exact Title CONCEPTUALIZING A BODY OF KNOWLEDGE OF SOLID MATERIALS PROCESSING WITH IMPLICATIONS FOR CURRICULUM DEVELOPMENT

Degree Granted Ph.D. Date 1971 No. of pages in report 200

Granted by The Ohio State University Columbus, Ohio
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E. R. I. C. ( )

Purpose of Study

To develop a rationale and a structure for the teaching of solid materials processing technology. A further purpose was to delineate the implications of this body of knowledge for curriculum development.

Source of Data and Method of Study

The process of content analysis was used to derive a classification of solid materials and a classification of properties of solid materials by researching literature, conferring with materials specialists, and meeting with teaching personnel. Materials specialists reacted to and revised the classifications.

Findings and Conclusions

On the basis of conceptualizing a body of knowledge of solid materials processing with implications for curriculum development, the following conclusions were presented.

1. A "Classification of Solid Materials" provided a basis for the identification of a body of knowledge of solid materials processing technology.

2. A "Classification of Properties of Solid Materials," with mechanical and non-mechanical sub-elements, provided a basis for the identification of a body of knowledge of solid materials processing technology.

3. The classification of processes (forming, separating, and combining) and their sub-elements as developed by the Industrial Arts Curriculum Project, (IACP), were applicable to all materials and provided a basis for the identification of a body of knowledge of solid materials processing technology.

4. The structured body of knowledge of materials processing had implications for industrial arts curriculum workers at many levels as well as for curriculum workers in other technical curricula such as engineering.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Waldorf (Last name), Robert (First name), James (Middle name)

Exact Title STUDENT PERCEPTIONS OF FACTORS WHICH INFLUENCE ENROLLMENT IN TRADE AND INDUSTRIAL EDUCATION PROGRAMS IN FAIRFAX COUNTY, VIRGINIA

Degree Granted Ph.D. Date 1971 No. of pages in report ____

Granted by George Washington University (Name of institution) Washington, D. C. (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To ascertain, through descriptive research, those which influenced male high school students toward enrollment in trade and industrial education programs in the vocational-industrial center of Fairfax County, Virginia.

Source of Data and Method of Study

The subjects surveyed were the total population of male students enrolled in such programs in the three Fairfax County centers during the month of March, 1971. This population included students from all public high schools in the County. Students from "feeder" schools are bused to the vocation centers for half days.
The literature concerning reasons for student choice of a vocational education curriculum was reviewed. From this review a survey instrument was developed. The assistant principals in charge of vocational education at the three centers distributed survey instruments, which were filled in and returned by 89.69 per cent of the population.

Findings and Conclusions

1. Assignment to a high school which houses a vocation-industrial center encouraged enrollment in programs of trade and industrial education. Conversely, assignment to a high school which does not house a vocation-industrial center inhibited enrollment in such programs.
2. The most frequently identified persons who first suggested enrollment in the program surveyed were, the high school counselor, the respondent himself, and the boy's father.
3. The persons most influential in final enrollment were perceived as being the respondent, the high school counselor, and the boy's father.
4. Outside work experience was the activity which most often led to interest in enrollment in trade and industrial programs.
5. Persons who discouraged enrollment were primarily members of the families of the surveyees. School personnel were not perceived as discouragers of enrollment.
6. A majority of the respondents, 78.48 per cent, reported that they were satisfied with the activities of their programs.
7. The vocational objectives were the most attractive aspect of the respondents programs.
8. The two major dislikes centered around tools and equipment, and around transportation to and from "feeder" school and vocational-industrial center.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Weagraff, Patrick, James
(Last name) (First name) (Middle name)

Exact Title FACTORS INHIBITING THE DEVELOPMENT OF VOCATIONAL EDUCATION.

Degree granted Ed.D. Date 1971 No. of pages in report 105

Granted by U.C.L.A. Los Angeles, California
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

This study identified and investigated those factors which tend to inhibit the development of vocational education in California. It determined the various causative factors commonly accepted by vocational education authorities in California, and further analyzed these authorities perceptions of solutions which would overcome these factors. Also investigated were the solutions to these suppressing factors as they were perceived by community leaders and school personnel.

Source of Data and Method of Study

Data required for this study were collected through one survey questionnaire, three interview schedules and a Q sort. Fifty randomly selected vocational education authoritites were surveyed. They identified the factors which they perceived as inhibiting the development of vocational education in California. They further arrived at solutions to the inhibiting factors. These solution statements formed the basis for the development of a Q sort.

A pilot study was conducted on the Q sort. The Q sort was then administered to 32 community leaders and school personnel in the La Canada Unified School District. A critical analysis was made of the Q sort. This analysis determined the factors which inhibit the growth of a vocational education program in that district and the actions likely to promote its development.

Findings and Conclusions

Vocational education authorities perceived seven factors as inhibiting the development of vocational education in California. These factors were identified as: (1) a shortage of qualified vocational teachers and administrators; (2) poor placement opportunties for students; (3) lack of adequate communication from vocational educators to parents, citizen groups, students, legislators and other educators; (4) the small number of students enrolled in a district; (5) lack of adequate and systematic financial support by the federal government; (6) inefficient and ineffective working relations between the state government and local shcool districts; and (7) the low social status and prestige of vocational education.

Community leaders and school personnel identified 5 factors which interact to inhibit the development of vocational education. The primary factors were identified as: (1) poor communications; (2) inadequate job placement opportunities for students; and (3) vocational education's low status to prestige. The secondary inhibiting factors were identified as: (1) the small number of students enrolled in the school district; and (2) inadequate financial support by the state government.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE AIAA - ACIATE - NAITTE

Author Wheeler, Edward, Allen
(Last name) (First name) (Middle name)

Exact Title INDUSTRIAL SPONSORSHIP OF CONTINUING EDUCATION FOR ANTI-OBSOLESCENCE OF ENGINEERS AND SCIENTISTS.

Degree granted Ed.D. Date 1965 No. of pages in report 166

Granted by Lehigh University Bethlehem, Pennsylvania
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The delineation of professional obsolescence and the survey of anti-obsolescence trends and practices in industrial sponsorship of continuing education for engineers and scientists constituted the purpose of this dissertation.

Source of Data and Method of Study

Normative survey and ease study methods of research were used to study trends and practices in industrial sponsorship of continuing education. Survey design was based upon one hundred large manufacturing companies, located in aerospace, chemical, electrical, electronics, machinery, metals, and petroleum industries. Sampling was stratified and data were obtained by mail questionnaire. Case studies of continuing education programs sponsored by selected companies in the electric-electronics industry were made. Data were obtained from the proceedings of conferences.

Findings and Conclusions

The advancement of anti-obsolescence in industrially-sponsored continuing education was sought in the recommendations made for the findings of this study.

Early imporvement of educational needs of senior engineers and scientists was suggested, and a plan, making use of presently sponsored continuing education, was proposed for this purpose. Objective analysis of industrially-sponsored continuing education was recommended, and a program of analysis was advanced to assist this need. Cooperative study of obsolescence and continuing education by industry, professional societies, and universities was advocated. Specific research for further investigation of obsolescence and continuing education also was proposed..

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Wiggs (Last name), Garland (First name), Dean (Middle name)

Exact Title DEVELOPMENT OF A CONCEPTUAL MODEL FOR ACHIEVING PROFESSIONALIZATION OF AN OCCUPATION: AS APPLIED TO THE AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT AND TO THE HUMAN RESOURCE DEVELOPMENT OCCUPATION

Degree Granted Ed.D. Date May 1971 No. of pages in report ______

Granted by George Washington University (Name of Institution) Washington, D.C. (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

1. To identify through the development of a conceptual model how occupations become professionalized and how their associations further the process of professionalization within the occupations.
2. To apply the model to a specific association, The American Society for Training and Development (ASTD) and to its represented occupational field, Human Resource Development (HRD).

Source of Data and Method of Study

A survey of literature on occupational sociology, association management, plans and planning, models and model building, application of planned change efforts in organizations, the ASTD, and the HRD occupation was made in developing the model and in analyzing its use. The principal procedure used was that of descriptive-analytic research.

Findings and Conclusions

The review of literature resulted in the identification and description of a series of stages with resulting developmental needs leading to the professionalization of an occupation.
It was found that a schematic model can be created to illustrate the sequence of stages and their interrelationships to the developmental needs of an occupation as it matures and becomes fully professionalized.
The study suggested that occupations experience varying degrees of professionalization throughout their life cycles and that there is a spiraling and recycling effect in the process of professionalization even after an occupation has achieved full maturity.
The model can be used in a variety of ways: (1) to identify the general planning areas related to professionalization of the occupation requiring the attention of the association; (2) as a checklist of questions to be raised or actions to be taken during the planning and implementation stages of an occupation's development and professionalization; (3) to indicate constraints and dependencies among the association's programs, services, and procedures related to the process of professionalization of an occupation; (4) to identify the critical events, issues, or needs relative to an occupation's professionalization for particular association management attention.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Face, Wesley, Lloyd
(Last name) (First name) (Middle name)

Exact Title MULTI-TRACK SEQUENTIAL ANALYSIS IN EDUCATIONAL EVALUATION

Degree granted Ed.D. Date 1963 No. of pages in report 343

Granted by University of Illinois Urbana, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To analyse multi-track sequential analysis in educational evaluation.

Source of Data and Method of Study:

In the tryout of these techniques, the subject read the question, selected his answer on the self-scoring device and then plotted the sequence of answers on the graphic form or maintained a cumulative total if using the tabular form. If the plotted point on the graphic form moved to an area of decision, observations were stopped and the appropriate level of accuracy was awarded. If the subject was using the tabular form, observations were stopped when the subject's cumulative total of defectives was equal to a previously calculated total and the appropriate label was awarded.

Findings and Conclusions:

The use of multi-track sequential analysis coupled with a self-scoring device offers the evaluator a new technique by which he can maintain all the advantages of sequential analysis and also add the elements of immediate knowledge of accuracy of response and knowledge of the level of accuracy.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Fahrlander, Daniel, C.
(Last name) (First name) (Middle name)

Exact Title THE ROLE OF THE TEACHER IN THE VOCATIONAL EDUCATION AND PRACTICAL ARTS LABORATORIES

Degree granted ED.D Date June 1972 No. of pages in report 98

Granted by Utah State University Logan, Utah
(Name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

To develop and test an instrument that would assist an individual to record and analyze teacher behavior in the vocational education and practical arts laboratories.

Source of data and method of study:

Observations were made in eleven northern Utah high schools. Teachers of selected vocational education and practical arts laboratories were observed for half-hour periods of time. An instrument was developed and tested that would accomodate the kinds of teacher activites that typified instruction in the laboratory setting.

Findings and Conclusions:

Two specific hypothesis regarding teacher behavior in the laboratory were tested. In the first, teacher behavior was found to be significantly related to the number of activities that were student initiated.

From the results of the study, it was concluded that teacher behavior could be objectively described and that, more specifically, laboratory teacher behavior could be recorded and analyzed with the help of the instrument developed in this study.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Fecik, John, T.
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION AND CLASSIFICATION OF GRAPHIC COMMUNICATION TECHNOLOGY.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by University of Maryland College Park, Maryland
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The basic purpose of this study was to provide information concerning the technology of the graphic communication industry.

Source of Data and Method of Study:

The procedure of this study involved the identification of criteria to be considered when developing a structure. These criteria were the basis for analyzing an area of knowledge and classifying that knowledge in comprehensible terms. The review of the literature indicated the reproduction processes from which common elements were identified. These elements were then used to classify the various industrial techniques.

Findings and Conclusions:

From the developments of this study the following conclusions were drawn: that printing and graphic arts activities stress the graphic communication aspect of the reproduction processes; that a need existed for industry and education to agree on terminology; that a need existed for publication of materials by the industry for educational reference; that educators should avail themselves of materials and periodicals the industry does produce; and that educators must attempt to investigate new industrial techniques and processes and incorporate the findings into their programs.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Feirer, John, Louis
(Last name) (First name) (Middle name)

Exact Title RESEARCH LEADING TO ADVANCED DEGREES IN INDUSTRIAL ARTS EDUCATION IN THIRTY-THREE COLLEGES AND UNIVERSITIES.

Degree granted Ed.D. Date 1946 No. of pages in report 283

Granted by University of Oklahoma Norman, Oklahoma
(Name of Institution) (City, State)

Where Available, Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To investigate graduate work and its relationship to research.
2. To develop instructional units necessary for successfully carrying out a research study.
3. To develop research requirements in graduate programs with special reference to the master's degree.
4. To write and evaluate a course of study for research.
5. To determine the policies and practices of research advisers.
6. To present the opinions of leaders on major issues concerning research.
7. To study the results of research work on the doctoral level and to compare past practices with current opinions on important issues.
8. In terms of the findings of this study, to indicate how changes can be made so that research may become a more important instrument in improving educational practices.

Source of Data and Method of Study:

To secure the needed data, a questionnaire was sent to the leaders in the field at all the colleges and universities offering graduate work in Industrial Arts. Thirty-three of the 39 individuals responded to the request for information. As the study progressed, a jury of ten men, selected from the original respondents, agreed to aid in evaluating a course of study prepared by the writer. This course of study, in a preliminary form, was included in a 36 page, mimeographed bulletin which was sent to each member of the jury. The doctoral dissertations in Industrial Arts that are reviewed and analyzed were secured through the inter-library loan.

Findings and Conclusions:

1. A large majority of the writers included the following basic information in their completed studies: title page, acknowledgment, list of tables, final summary, conclusions, bibliography, and appendix.
2. In the chapter called "introduction or statement of the problem," over half of the writers showed the worth-whileness of the problem, and a statement of aims or objectives, and reviewed the related literature.
3. Over 80 per cent of all wirters employed the normative survey method.
4. The most common technique employed to collect data and information was the questionnaire.

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TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Frye, Roye, Melton
(Last name) (First name) (Middle name)

Exact Title THE THEORY OF TRAINING AND THE TRAINER ROLE IN THE INDIANA PLAN INSTITUTE.

Degree granted Ed.D. Date 1963 No. of pages in report 194

Granted by Indiana University Bloomington, Indiana
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To set forth the theory of training implicit in the Indiana Plan Institute and to analyze the nature of the trainer role as its focal means of actualization.

Source of Data and Method of Study:

Data for the study were gathered from literature of a critical, analytical nature on the Indiana Plan, from writings on the Institute, and the investigators own experience as a trainer in the course of 15 Indiana Plan Institutes as a source of information about the Plan and as a critical guide for the selection of categories to construct a logical framework for the subject of the study.

Findings and Conclusions:

1. Educational Conditions in the Indiana Plan are: (a) the embodiment of principles of learning in a democratic contest; (b) principles of method for collaboration among adult learners in the process of growth; and (c) essentially tasks to be performed in the process of training adults to learn how to learn.
2. An antecedent-consequent relationship obtains between the educational conditions and educational results of the Indiana Plan.
3. The Indiana Plan Institute is a highly structured learning situation in which three types of training are provided: (a) In-group participation; (b) Out-group participation; and (c) Application or transfer.
4. Concepts integral to Institute training theory are (a) authoritative guidance, (b) Feedback, (c) Reinforcement, (d) group-self-appraisal, and (e) Perceptual alteration.
5. The trainer role is conditioned by five variables which are (a) purposes of Institute training, (b) the institute curriculum, (c) the composition of the training group; (d) requirements for becoming a trainer and (e) the trainer's educational philosophy.
6. The trainer assumes 11 roles in relation to three levels of group need.
7. Seven standards or norms are postulated as operational principles for guiding trainer activities.
8. Technology employed by the trainer consists of four techniques: (a) the trainer interruption; (b) the critique; (c) the consultative-counseling process; and (d) the theory presentation.
9. Focal Institute phase problems are associated with participant orientations in the areas of dependence and independence.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Fuglsby, Glen, Orville
(Last name) (First name) (Middle name)

Exact Title OCCUPATIONAL PATTERNS IN FOUR NORTHWEST IOWA COUNTIES.

Degree granted Ph.D. Date 1965 No. of pages in report 138

Granted by Iowa State University Ames, Iowa
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This investigation presents the "employment needs" new and in the next five years in Lyon, O'Brien, Osceola, and Shaw Counties in the State of Iowa.

Source of Data and Method of Study:

It is based upon a personal interview of the businesses and industries in this area, and on a mailed questionnaire from a sample of the farm operators. It is assumed that if the employer's needs are known, then present and future employees can be advised of these needs and guided into these occupations.

Findings and Conclusions:

The occupational climate in the four county area seems to be favorable. In the next five years, the total number of employees will increase by nearly 12%. Since some of the employers declined to predict their needs for the next five years, this 12% increase may be low. When the prospective employment needs are classified by occupation groups, growth is evident in every group during the next five years. The prospective employment needs, when classified by industry groups, also indicate growth in each of the eight industry groups in the next five years.

Also of importance is the interest of the employer in the employee, in terms of training and education. This is substantiated by the fact that one out of five employers has an inservice training program; that one out of five would like to imitate a cooperative industry-education program; that many of the present occupations require a high school education or more; that many of the jobs not requiring much education are in the service, semi-skilled and unskilled occupations; and that post high school education is desirable in many instances. This interest and desire for better trained workers should be an important indication to the administrators of our educational systems, as they make plans for the present and future needs of our young people.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Fuller, Foster, Devine
(Last name) (First name) (Middle name)

Exact Title A FOLLOW-UP STUDY OF THE VOCATIONAL ADJUSTMENT OF A SELECTED GROUP OF UNEMPLOYMENT PRONE-YOUTH.

Degree granted Ed.D. Date ________, No. of pages in report 222

Granted by University of Illinois Urbana, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine if the subjects who were in an experimental group which was subjected to special prevocational treatment were superior to their counterparts in a control group (matched on selected variables) with respect to vocational adjustment in the world of work.

Source of Data and Method of Study:

A follow-up study utilizing the interview and questionnaire technique for gathering data.

Findings and Conclusions:

The study concluded that there was no difference between the experimental group and the control group with respect to vocational adjustment in the world of work.

Other important findings indicated that (a) fifty-two percent of the subjects in the experimental group dropped out of school (ten of the twelve girls left school) as compared with thirty-four percent of the subjects in the control group who left school via the drop out route, (b) over half of the subjects in the combined groups earned less than $3000 during 1969, and (c) the control group outperformed the experimental in ten of the eighteen comparisons made. However, the differences favoring the control group were not statistically significant.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Fuller (Last name), Mary (First name), Margaret (Middle name)

Exact Title A DESCRIPTIVE STUDY OF LEADERS IN PUBLIC SCHOOL VOCATIONAL EDUCATION IN CALIFORNIA.

Degree granted Ed.D. Date 1970 No. of pages in report ________

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To record data on three dimensions which describe a group of full-time vocational education leaders in California public schools.

Source of Data and Method of Study:

Participants were 133 California public school vocational education leaders who were 72 per cent in age range from 40 to 59 years; 19 per cent had bachelor's degrees; 69 per cent had master's degrees; 83 per cent were Protestant; 92 per cent were male; 95 per cent were Caucasion.

Findings and Conclusions:

Vocational educators as a group have attitudes and behavioral characteristics which would indicate that adoption of new and different forms of leader behavior and leadership training may be difficult. They are promoted from within and are given long and consistent leadership training/development programs. Most interpret highly structured relationships among people as being "inappropriately manipulative" rather than "sometimes appropriate." However, change may be facilitated as a result of their expressed concern about their lack of knowledge of their roles; about their need to increase effective interpersonal communication; and, they do have high consideration for others.

Vocational educators continue to be good operators of programs and the training and education about how to operate programs should continue. It was recommended, however, that opportunities be provided which would reward both increased knowledge and increased performance about their roles, and about the appropriate combinations and applications of democratic and autocratic leader/administrator behavior.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Gallinelli, John, W.
(Last name) (First name) (Middle name)

Exact Title AN EXPERIMENTAL STUDY TO DETERMINE THE DIFFERENTIAL EFFECTS OF PAIRING STUDENTS BY ABILITY LEVELS FOR COOPERATIVE INTERACTION WITH SELF-INSTRUCTIONAL MATERIALS COMPARED WITH NORMAL PROGRAM USE.

Degree granted Ph.D. Date 1970 No. of pages in report 151

Granted by University of Maryland College Park, Maryland
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was not to produce evidence in support of or in opposition to programmed learning used by individuals in the usual manner. Instead, it was an attempt to present evidence concerning an alteration of the original method which would expand the use and flexibility of programmed learning.

Source of Data and Method of Study:

The five groups were randomly selected from college level students at the University of Maryland. The three paired groups worked as teams whereas the two normal non-paired groups worked the linear program in the usual individual manner.

Findings and Conclusions.

There was no significant difference in learning between the pair and non-paired groups

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Gearing (Last name), Phillip (First name) (Middle name)

Exact Title A STUDY OF SELECTED EFFECTS OF VOCATIONAL GROUP GUIDANCE AND INDIVIDUAL VOCATIONAL COUNSELING ON ADULTS IN THE CURRICULUM OF ADULT BASIC EDUCATION

Degree granted Ph.D. Date 1970 No. of pages in report

Granted by Florida State University (Name of Institution) Tallahassee, Florida (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine the effect that the addition of experimental treatment of individual vocational counseling and/or vocational group guidance might have upon the vocational interests, self-concept, and socio-economic base of 118 enrollees in Adult Basic Education classes at the Florida Junior College at Jacksonville, Florida.

Source of Data and Method of Study:

One control and two experimental groups were selected at random. The control group received no other experimental treatment than pre and post-testing; one experimental group received experimental treatment involving vocational group guidance and the other had individual vocational counseling added to vocational group guidance. Tools used in measuring various changes and levels were the Kuder Preference Record-Vocational; the Index of Adjustment and Values, Bills; the Index of Value Orientation McGuire and White; Tests of Adult Basic Education; and a Personal Resume Data Sheet.

Findings and Conclusions:

The findings of this study implied that both the experimental treatment of vocational group guidance and the experimental treatment of individual vocational counseling added to vocational group guidance produced positive effects of a significant level in the areas of vocational interests and self concepts; however, neither experimental treatment was more effective than the other. No effect of significance on the socio-economic base of the enrollees was indicated as a result from either of the experimental treatments. The recommendations suggested that a program of vocational group guidance incorporating individual vocational counseling be added to the Adult Basic Education curriculum throughout the country.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCY COMMITTEE - AIAA - ACIATE - NAITTE

Author Gettle (Last name), Karl (First name), Eugene (Middle name)

Exact Title THE DETERMINATION AND COMPARISON OF THE TEACHER'S VERBAL BEHAVIOR INVOLVED IN THE TRADITIONAL AND MARYLAND PLAN APPROACHES OF TEACHING INDUSTRIAL ARTS IN SELECTED EIGHTH GRADE CLASSES OF MONTGOMERY COUNTY, MARYLAND DURING THE SCHOOL YEAR 1969-70.

Degree granted Ph.D. Date 1970 No. of pages in report 137

Granted by University of Maryland (Name of Institution) College Park, Maryland (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to provide information on the type of teacher verbal influence and the type of verbal interactions found in the classrooms of two different plans of teaching industrial arts.

Source of Data and Method of Study:

The procedure of this study involved:

1. identification of effective traditional and Maryland Plan teachers,
2. selection and use of the Flanders system of interaction analysis as the major instrument of study.
3. observation, classification, and recording of verbal interaction into matrices
4. analysis of the resulting matrices.

Findings and Conclusions:

The major conclusions drawn from the findings of the study were:
1. Traditional teachers exhibit a direct influence pattern in their teaching.
2. Maryland Plan teachers exhibit an indirect influence pattern in their teaching.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Goldberg, Joel,
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION OF A CURRICULUM CORE BASED UPON CONTENT COMMON TO A CLUSTER OF RELATED ELECTRICAL AND ELECTRONICS OCCUPATIONS.

Degree granted Ph.D. Date 1971 No. of pages in report 170

Granted by Wayne State University (Name of Institution) Detroit, Michigan (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study.

The purpose of the study was to develop a curriculum core for a selected cluster of electrical and electronic occupations based on knowledge found to be common to these occupations.

Source of Data and Method of Study:

Occupations were identified from Dictionary of Occupational Titles listings, then delimited by educational, geographical, pre-employment, and job need factors. Tasks identified , knowledge required to perform tasks was developed from textbook and research information. Master list for each occupation in the cluster was sent to a jury for validation and results collated into one master list of knowledge and tasks common to the cluster.

Findings and Conclusions:

A cluster of five electrical and electronic occupations was identified: Audio-Video Repairman, Electro-Medical Equipment Repairman, Electronics Mechanic, Electrical Instrument Repairman, and Tester, Systems (electronics). These occupations represented occupations which indicated employment opportunities presently and in the future in the Wayne, Oakland, and Macomb Counties of Michigan. Forty-three performance tasks were identified, as well as 308 items of electrical and electronics knowledge required to perform the tasks.

Conclusions drawn from the results of the study were: (1) the identification of five occupations which were classified as a cluster of related electrical and electronic occupations, (2) the majority of tasks performed by those employed in the cluster are common to all of the occupations in the cluster, (3) a body of electrical and electronics knowledge was found to be common to the cluster, and (4) the common body of electrical and electronic knowledge was presented as a curricular core for the defined occupational cluster. This represented the technical portion of an electrical and electronics curriculum.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Gordon (Last name), Linda (First name), Schachter (Middle name)

Exact Title PERCEPTIONS OF THE COOPERATIVE STEEL PROJECT AS SEEN BY PLANNERS AND PARTICIPANTS.

Degree granted Ed.D. Date 1971 No. of pages in report

Granted by George Washington University (Name of Institution) Washington D.C., (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to describe perceptions of planners and participants, as reported by interview, of the experimental Cooperative Steel Project, sponsored jointly by the federal government, the United Steelworkers of America, and the nation's ten major steel companies.

Source of Data and Method of Study:

The planner group for the course consisted of ten representatives of the company, union, and government. The respondent group consisted of 34 of the 76 graduates of the January, 1968, class. Through interview questions, data describing perceptions about the following were collected: (1) participants' knowledge about the planning of the course; (2) benefits from learning to read, write, and complete arithmetic problems at a fifth-grade level; (3) problems during enrollment with suggestions for improving the course.

Findings and Conclusions:

1. This study substantiates previous research in showing that participants should work together with planners in preparing programs for their involvement.
2. Since 91 percent of the participants talked openly and freely with the interviewer, it is concluded that participants (or employees) will talk about themselves, their problems, and their company to someone who is interested.
3. Benefits from taking the course were felt to be substantial.
4. The problems of testing and individual differences went unrecognized by instructors who were reported by students to have been empathetic.
5. Because of the problems in identifying individual differences in learning, a definite program of counseling should be developed.
6. Of the reasons stated for choosing this course, the following give insight into the aspects of a course which make it attractive to participants: found time and place convenient; wanted to be with peer group; the course was free; was approached personally and invited to take it; passing the test at the plant would help with the job.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Gramberg (Last name), Merlyn (First name), Ludwig (Middle name)

Exact Title PROGRAM BUDGETING FOR INDUSTRIAL EDUCATION.

Degree granted Ed.D. Date 1971 No. of pages in report 69

Granted by University of Northern Colorado (Name of Institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to develop a model for program budgeting at the collegiate level in industrial education. The recommendations derived from this study provide a common program structure for budgeting.

Source of Data and Method of Study:

The fiscal year of 1969-1970 was considered "a typical year" for student enrollment and budgetary purposes at the University of Northern Colorado. Course outlines for drafting and woodworking were analyzed and activities identified. Student and course costs were determined from these activities for drafting and woodworking by figuring the cost of student supplies, equipment, instruction, administration, secretarial help and office supplies. The program budget was developed from this analysis and a review of the literature.

Findings and Conclusions:

Student cost based on the activities of a course can be identified. From these student costs, the course cost and area cost can be figured.

It was found that the number of contact hours in a course compared to credit hours in a course had no significance in computing total course cost.

From the application of the model designed in this study, costs for industrial arts programs can be determined and budget projections established.

New program and course additions for a department can be reviewed with greater detail when the new program is subjected to the budget model.

The inclusion of depreciation costs in computation of the departmental budget is vital because, equipment necessary for course activities does become inoperative, unmaintainable and obsolete. The instructor's judgement is a human variable in arriving at the life expectancy of equipment in his respective laboratory.

Program budgeting is a step closer to financial accountability for collegiate department because it itemizes its needs of each course according to its activities.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hahn, Marshall, Sterling
(Last name) (First name) (Middle name)

Exact Title THE INFLUENCE OF CREATIVITY ON THE EFFECTIVENESS OF TWO METHODS OF INSTRUCTION.

Degree granted Ph.D. Date 1967 No. of pages in report 120

Granted by University of Minnesota Minneapolis, Minnesota
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To ascertain experimentally whether creativity, as measured by the Minnesota Tests of Creative Thinking, Abbreviated Form VII, influences the effectiveness of two specific methods of instruction.

Source of Data and Method of Study:

Fourteen industrial arts classes, representing 265 students from three general areas, from the largest high school in the Minneapolis school system were chosen for the population. A random sample of 120 members was identified from the previously stratified and divided sub-populations and assigned equally to the four sub-samples representing the four cells of the two-way analysis of variance.

Findings and Conclusions:

There was no significant difference between the high and low creative ability groups, between the programmed instruction and directed discovery methods, and no interaction between creative ability and treatments in the amount of learning they achieved as shown by the analyses of the three criterion tests. The programmed instruction and directed discovery methods were equally effective for the high and the low creative ability groups with regard to the amount of learning achieved as shown by the analysis of mean scores on the criterion tests.

A .01 correlation was found between the summated creativity scores of the MTCT and the verbal IQ scores from the DAT.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

A Author Hallahan, Michael, Francis
(Last name) (First name) (Middle name)

Exact Title DISADVANTAGES MALE GRADUATES' OPINION OF HIGH SCHOOL EDUCATION AS RELATED INDIVIDUAL GOALS.

Degree granted Ed.D. Date 1969 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To determine the adequacy of the educational experience in terms of individual needs, as perceived by students;
2. To determine what important differences exist in opinion, and thus in needs, among ethnic groups, among ability level groups, and among occupational status groups; and
3. To determine what the role of the school has been in influencing goals.

Source of Data and Method of Study:

A questionnaire administered to graduates by mail and in personal interviews was the source of student opinion and of current information on strudents' pursuits. Background information was gathered from CEP records and district files. Responses to opinion questions were recorded in tables in percentages according to subgroup classifications, and results were descriptively analyzed.

Findings and Conclusions:

Based on the trends in opinion it was concluded that the role of the school needs to be intensified in helping students in forming, pursuing, and realizing goals, and also that a better vocational program tied in more directly with course work, a strengthened program in language arts, and an effort by the school to provide trained and empathetic teachers would best fulfill the most pressing needs of the students as they see them.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hansen, Philip, W.
(Last name) (First name) (Middle name)

Exact Title AN EVALUATION OF SELECTED WOODWORKING PROJECTS.

Degree Granted Ed.D. Date 1970 No. of pages in report 183

Granted by North Texas State University Denton, Texas
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was an investigation to determine the relevance of selective woodworking projects to the commonly accepted objectives in industrial arts.

Source of Data and Method of Study:

The study involved the development of criteria for use in evaluating 100 selected projects. The jury technique was used in the development of the criteria and evaluation of projects.

Findings and Conclusions:

1. It was found that sixty-five projects were suitable at more than one level.
2. The jurors rated thirty-one of the projects as being suitable for junior high school projects.
3. Four of the projects were rated as being suitable for high school work, while twenty-three of the projects were given a level of suitability rating for both junior and senior high school.
4. Thirty-nine of the projects were rated suitable for college only.
5. Three of the projects were rated suitable for all levels.
6. The projects selected for the junior high school and high school would not substantially meet the objectives of instruction at that level.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hanson, Robert, Richard
(Last name) (First name) (Middle name)

Exact Title EFFECTS OF PERIPHERAL STIMULI REDUCTION UPON LABORATORY LEARNING IN INDUSTRIAL ARTS.

Degree granted Ph.D. Date 1970 No. of pages in report 158

Granted by Purdue University Lafayette, Indiana
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To investigate the effect of limiting peripheral stimuli and emphasizing essential elements in complex laboratory learning and to compare this method with more traditional approaches to teaching the content.

Source of Data and Method of Study:

A unit on measurement covering the ruler, micrometer, vernier caliper, and printer's line gauge was presented in printed booklets developed by the experimenter. Junior high school students in industrial arts classes (n=150) received instruction under one of three conditions: (1) the printed booklets; (2) classroom presentations by the regular teacher; or (3) teacher-assisted study of the experimental booklets. An experimenter-developed multiple choice test served as the criterion.

Findings and Conclusions:

No statistically significant differences were identified among; (1) mean criterion test scores of subjects exposed to the three treatments; (2) mean scores of subjects at the seventh and eight grade levels; or (3) mean scores of subjects taught by the two cooperating teachers.

The results of this study suggest that learning presentations which limit peripheral stimuli and focus the attention of the learner upon the essential elements of the learning task are equivalent to more typical approaches to teaching complex technical content.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hatalsan (Last name), John (First name), William (Middle name)

Exact Title A FOLLOW-UP STUDY OF SAN DIEGO APPRENTICE GRADUATES, 1947-1955, PROVIDING INFORMATION FOR GUIDANCE AND COUNSELING USE IN SECONDARY SCHOOLS.

Degree granted Ed.D. Date 1963 No. of pages in report ______

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To provide information about personal characteristics, occupational progress, economic status, educational activities, and labor, management, and professional organization activities of apprentices after completion of their apprenticeship training.

Source of Data and Method of Study:

A questionnaire was used to obtain information from 722 apprentices who were graduated from nineteen different apprenticeship training programs in San Diego during the period of 1947 to 1955.

Findings and Conclusions:

The results of the study show that apprenticeship is meeting the needs of our industrial economy by training the skilled craftsmen that our industries need. Apprenticeship also contributes to the supervisory and managerial talent that our expanding industrial society needs. It assists in the development of citizens that are contributing members of our industrial world and the substance of our community life. Apprentice graduates were well established, married family men and tax paying home owners. They moved readily from journeymen to supervisory and to business ownership status. They experienced little unemployment; tended to remain with one employer; and remained in the trade for which they had trained. Average hourly rates of apprentice graduates were higher than area prevailing journeyman rates in effect in the individual trades and average annual incomes were higher than those of skilled workers in the state and in the nation in comparable industries. A large proportion of the graduates took additional training after apprenticeship with the primary objective that of occupational advancement. They participate actively in labor, management and professional organizations. The results of this study show that apprentice graduates progress readily to jobs with greater responsibility; they experience low unemployment and job mobility; they remain in the trade for which they had trained; they earn higher incomes than workers in the same or comparable industries; they are active in labor, management, and professional organizations; and they continue their education.

SOURCE SHEET FOR SUMMAREIS OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hauser, Roger, Emmett
(Last name) (First name) (Middle name)

Exact Title AN ANALYSIS OF INDUSTRIAL TECHNOLOGY CURRICULUM AND ITS SIGNIFICANCE TO THE CASTING INDUSTRY.

Degree granted Ed.D. Date 1971 No. of pages in report 211

Granted by University of Northern Colorado (Name of Institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfiche (x) E.R.I.C. (x)

Purpose of Study:

The purpose of this study was to determine to what extent industrial technology programs were training technologists in light of the needs of the casting industry.

Source of Data and Method of Study:

The data for this study were obtained by the use of opinionnaires sent to selected plant managers of casting industries and to casting instructors at schools offering four-year technology degrees. Data from the plant managers and casting instructors were compared by frequency of responses, percentage of responses, and chi square statistical values.

Findings and Conclusions:

Plant managers and casting instructors agreed that a definite need exists for industrial technologists in the casting industry. The content of casting curricula in industrial technology needs improving to reflect what is being practiced in modern industry.

Plant managers and casting instructors unanimously agreed that the area of technical courses is the most important area for a student who anticipates employment in the casting industry. The importance of specific courses, instructional units and equipment were determined. On all items where there was a significant chi square disagreement, casting instructors consistently rated these items higher than did plant managers.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Heilman , Donald , Edward
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT OF A CURRICULUM FOR PROFESSIONAL PREPARATION OF INDUSTRIAL ARTS TEACHERS.

Degree granted Ed.D. Date 1963 No. of pages in report 210

Granted by University of Washington Seattle, Washington.
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To recommend a curriculum for the preparation of industrial arts teachers, based on the opinions of a jury of experts in the field of industrial arts, which could be accepted nationally.

Source of Data and Method of Study:

The major portion of this dissertation was organized as a descriptive survey study. Information received about state certification requirements, curriculums for industrial arts teacher education and the survey data were tabulated, analyzed, summarized and interpreted.

Findings and Conclusions:

1. A curriculum for the professional academic preparation of industrial arts teachers was developed which met or exceeded the minimum requirements for the initial regular industrial arts teaching certificate in forty-six states and the District of Columbia.
2. In the proposed curriculum 126 semester hours of work in a four year program leading to a bachelor's degree were required.
3. The 96.4 per cent response to the questionnaire by the jury of experts suggested that the respondents are keenly interested in improving the professional preparation of industrial arts teachers.
4. There has been an increase in the number of general education hours required for both the bachelor's degree and teaching certificate, which indicated that general education is an essential part of the professional education of industrial arts teachers.
5. Professional education requirements in the proposed curriculum were within one semester hour of the average requirement in professional education.
6. The average number of hours in industrial arts courses required for state certification had increased by about two semester hours in the last ten years.
7. State certification requirements have tended to shift from the number of credit hours needed to complete an approved four year degree program to the number of hours required in various areas of study.
8. The mobility of teacher population has created a great need for uniform and nationwide industrial arts teacher requirements.
9. The attainment of high quality industrial arts educational programs has been largely the result of research evaluation, and continual improvement of their curriculum.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Henak, Richard, Merle
(Last name) (First name) (Middle name)

Exact Title TACTILE PERCEPTION OF SURFACE ROUGHNESS AS A DIMENSION IN HUMAN PERFORMANCE: IMPLICATIONS FOR SELECTION AND TRAINING.

Degree granted Ed.D. Date 1971 No. of pages in report 73

Granted by University of Illinois Urbana, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The study was designed to serve the following purposes: (1) determine if differences exist between skilled industrial sanders and novice subjects on the ability to identify surface roughness on unfinished wood with the use of active touch, and (2) access the effectiveness of laboratory instruction on the ability of novice subjects to identify surface roughnesses on unfinished wood with the use of active touch.

Source of Data and Method of Study:

The study was both correlational and experimental. Inasmuch as three subgroups of the population were compared to determine differences in tactile abilities, the study was correlational. The study was experimental because the effects of two treatments were assessed in an experimental-control group, test-retest experiment

Findings and Conclusions:

The odd-even reliability of the SRIT was moderately high on both the constant and variable error dimensions. The temporal reliability was unstable but significant relationships at the .025 level did exist.

The hypothesis that tested validity was based on a training-experience construct. The hypothesis was not supported by the data. The experimental treatment did not result in improved achievement by either the control or experimental group. The achievement on the SJT was related to the SRIT achievement at the .025 level. A significant relationship did not exist between the achievement on the SRIT and SJT. Because significant learning was not affected by the experimental treatment, the durability of the same effects could not be tested. No training effects transferred to the SJT performance.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Herberts, Roger, Edward
(Last name) (First name) (Middle name)

Exact Title SIMPLIFIED VERSUS COMPLEX DRAWINGS AS REPRESENTATIONS OF REAL OBJECTS AT SELECTED GRADE LEVELS.

Degree granted Ed.D. Date 1971 No. of pages in report 101

Granted by University of Illinois Urbana, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C ( )

Purpose of Study:

The purpose of this study was twofold. One aim was to examine the question of whether simplified multiview drawing describe the attributes of an object as effectively as a more complex drawing of the same object. Another purpose was to determine if a difference existed in the ability of students at various grade levels to interpret multiview drawings of different complexities.

Source of Data and Method of Study:

The sample consisted of 135 naive male subjects. Equal n's were selected to represent three educational grade levels; grades 7-8, 10-11, and 13-16. Subjects interpreted three simple, medium, or complex multiview drawings of a stimulus object having two, four, or six attributes. The time required for interpretation was recorded and subjected to the F test at the .05 level of significance.

Findings and Conclusions:

The study revealed that objects which contain two, four, or six definable attributes, other than shape or form, can be represented equally effectively with simple, medium, or complex multiview line drawings. The data supported the position that drafting principles and techniques can be simplified without hindering the effectiveness of the drawing. Results of the study indicated that subjects, representing three educational grade levels and naive to drafting, did not differ in their ability to interpret multiview drawings. The data did not reveal that subjects from a given grade level would perform better using a drawing of a given complexity level.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Herring, Tod, Hamilton
(Last name) (First name) (Middle name)

Exact Title AN EXPLORATORY INVESTIGATION OF KNOWLEDGE OF ELECTRICITY AND ELECTRONICS AMONG EIGHTH AND NINTH GRADE BOYS.

Degree granted Ed.D. Date 1962 No. of pages in report 175

Granted by University of Illinois Urbana, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To develop and try out a test of knowledge of electricity and electronics at the junior high school level.

Source of Data and Method of Study:

The method employed in developing the instrument was to analyze the content of junior high school books recommended by publishers who specialize in material in electricity and electronics at this level. The instrument was administered to 433 subjects in the eighth and ninth grade levels of four different schools. A questionnaire was administered at the same time to gather other pertinent data.

Findings and Conclusions:

The preliminary findings seem to indicate that most of what is covered in text books used in industrial arts, electricity and electronics at the junior high school level is already known by the students as a result of the general influence of the culture and through previous courses taken in the school.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hill, Richard, Emmet
(Last name) (First name) (Middle name)

Exact Title THE LEADERSHIP ROLE AS A FACTOR IN COMMITMENT AND SATISFACTION AMONG REGISTERED NURSES.

Degree granted Ph.D. Date 1970 No. of pages in report 123

Granted by Purdue University Lafayette, Indiana
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To investigate the relationship of the leadership role perceptions of R.N.s, leadership demands, nursing commitment, and nursing satisfaction.

Source of Data and Method of Study:

Questionnaire sent to R.N.s who graduated from 24 schools of nursing in Indiana during 1968 (n=336).

Findings and Conclusions:

Some significant differences were found. What entering nursing students expect nursing to be, that for which they are trained, their job, and that which they would like to do are all different.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION

Author Hodgson (Last name), Paul (First name), M. (Middle name)

Exact Title

Degree granted Ed.D. Date 1965 No. of pages in report 217

Granted by University of Pennsylvania (Name of Institution) Philadelphia, Pennsylvania (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was conducted to determine the need, if any, for further development of Industrial and Business Education in the counties of Kent and Sussex, State of Delaware. It dealt with the relationships between (1) school curricula offered, (2) occupational objectives of high schools students, and (3) employment opportunities

Source of Data and Method of Study:

The study was confined to the educational and employment activities within the school attendance areas of Kent and Sussex counties. 3.962 pupils enrolled in the ninth, tenth, and eleventh grades were involved. Personal interviews with certain of these students, their teachers, principals, and local employers provided much of the basic information for establishment and conduct of the over-all study. Courses were listed in three areas of preparation for employment: shop and industrial work, distribution work, and office or business work. The courses showing number of students enrolled were itemized by schools, then summarized by counties or subdivisions thereof in order to relate curriculum and student participation to employment. The objectives of secondary school students were evaluated in terms of present and future educational training opportunities. Student interest surveys were conducted in all the secondary schools. Employment opportunities and the employer's reaction to the school's responsibility for pre-occupational training were obtained by a sampling survey of employers, conducted by high school seniors to determine employment opportunities, education and training needed, and employer attitudes toward the responsibilities of the public schools.

Findings and Conclusions:

The study revealed that existing secondary school programs cannot adequately serve the vocational-technical training needs of the school population. The provisions cannot accommodate the large number of students who have indicated preference for vocational work. Students even appeared willing to attend other schools to obtain courses of their choice.

There were expanded employment opportunities and interested employers; but important differences of opinion concerning the types of vocational-technical education school programs had apparently delayed the advancement in this phase of education.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hofer, Armand, G.
(Last name) (First name) (Middle name)

Exact Title AN EXPERIMENTAL COMPARISON OF SELF-INSTRUCTIONAL MATERIALS AND DEMONSTRATIONS IN THE TEACHING OF MANIPULATIVE OPERATIONS IN INDUSTRIAL ARTS.

Degree granted Ed.D. Date 1963 No. of pages in report ______

Granted by University of Missouri Columbia, Missouri
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To ascertain the relative effectiveness of self-instructional materials consisting of photographs and printed instructions in booklet form and demonstrations in teaching industrial arts manipulative operations.

Source of Data and Method of Study:

Four groups of metalworking operations; foundry, copper enameling, drilling and counterboring, and threading, were taught to 50 seventh grade boys by alternating methods of presentation (two-group rotation). Each student received instruction on how to perform two groups of operations by demonstrations, with student performance the same class period as the instruction; and the other two operations were presente with instruction books, each step being performed by the student as he read it. Instruction was presented and performance observed and recorded with three or four students at a time. The students could not see each other work, and were given assistance only by the instructor.

Findings and Conclusions:

1. With respect to the amount of terminology and knowledge of procedure learned and retained, self-instructional materials may be expected to produce slightly highe achievement than demonstrations, and the difference in achievement should be more pronounced with students of lower intelligence and reading ability.
2. Students may be expected to require significantly less individual assistance whe performing manipulative operations with self-instructional materials than with demonstrations.
3. There should be no appreciable difference in the quality of the finished work resulting from the two methods of presenting information.
4. Self-instructional materials may be expected to require slightly more student time for instruction and performance than demonstrations followed immediately by performance, and the difference in time should be more pronounced with students of lower level intelligence and reading ability.
5. Self-instructional materials may be expected to require significantly less teacher class time for group instruction and individual assistance than instruction presented by demonstration.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Holtrop (Last name), William (First name), F. (Middle name)

Exact Title THE DEVELOPMENT AND PRESENT DAY STATUS OF VOCATIONAL EDUCATION IN THE NETHERLANDS.

Degree granted Ed.D. Date 1948 No. of pages in report 279

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To trace the development of the program of vocational education in the Netherlands and to present up-to-date data on the present status (1948) of this form of training.

Source of Data and Method of Study:

The data for the study were secured almost entirely by personal visits to the Netherlands, first in 1939 and again in 1947. During his last trip the author spent considerable time in inspecting schools, factories, and shops, placing special emphasis on factories with established programs of apprenticeship training.

Findings and Conclusions:

1. Through a combination of private initiative and state aid a vast program of vocational education has been established, with standards which attempt to meet those set by private industry.
2. Boys who have completed the required elementary school courses and desire some form of vocational training find ample opportunity at the many junior technical schools and trade schools.
3. Students who qualify for the secondary technical schools are offered courses of training which prepare them for the higher technical positions in trade, industry and navigation.
4. The many schools for homemaking offer an extensive number of short-unit and long-term courses to girls and young women who see, either vocational competence in home activities or work outside the home.
5. An elaborate state-supported program of apprenticeship training has been established for the proper guidance and development of young workers.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author House, Elaine, W.
(Last name) (First name) (Middle name)

Exact Title SELECTED FACTORS RELATING TO THE WORK CYCLE OF VOCATIONAL SKILL SUBJECT TEACHERS.

Degree granted Ed.D. Date 1970 No. of pages in report 122

Granted by Rutgers University New Brunswick, New Jersey
(name of institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study compared and contrasted the work cycle and occupational mobility of persons who had become--or aspired to be--vocational skill subject teachers. The focus was upon inter- and intragenerational mobility, and a comparison of occupational status with that of key reference persons. The data also provided sufficient information to generate a "profile" of the trade and industrial teacher, and to compare his educational attainment with that of the key reference persons.

Source of Data and Method of Study:

The sample consisted of: 202 trade and industrial teachers in New Jersey; 35 persons enrolled in the pre-service vocational teacher certification program at Rutgers, and 45 persons who had dropped out of the pre-service program. Four hypotheses were tested. The first two concerned the difference between the occupational status of subjects' first and last job in trade or industry and that of their fathers. Hypotheses 3 and 4 tested the difference in occupational status of subjects at three stages in their work cycle. Occupational status was coded using Duncan's Socio-Economic Index. The statistical text employed was analysis of variance.

Findings and Conclusions:

The skilled worker who has become-or aspires to be--a vocational teacher is not the typical "skilled worker" who appears in the literature. Teaching attracts workers who have been both inter- and intragenerationally mobile. Although they inherited their father's occupational status, they steadily gained in status while employed in trade or industry. For this sample of skilled workers, the influence of the father as a reference person diminished after the first job. Later in the work cycle, the importance of the wife and oldest brother as reference persons was noted. Not until he became a teacher, which represented a significant gain in status, did the trade and industrial teacher attain a status which exceeded that of his wife or oldest brother. The pre-service dropout had, in his last job in trade or industry, exceeded the status level of these reference persons. In all respects--occupational mobility, status and educational attainment--the pre-service dropout compared favorably with the trade and industrial teacher. His withdrawal from the program represented a loss to vocational education.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Householder, Daniel, Lee
(Last name) (First name) (Middle name)

Exact Title EFFECTS OF PROGRAMED INSTRUCTION UPON INITIAL LEARNING, RETENTION, AND SUBSEQUENT LEARNING FROM A TEXTBOOK.

Degree granted Ed.D. Date 1963 No. of pages in report 274

Granted by University of Illinois Urbana, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (xx) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was an experimental investigation of the relative effectiveness of a standard textbook, a linear program and a branching program for teaching a unit on screw thread terminology and thread standards.

Source of Data and Method of Study:

The textbook selections were chosen to meet criteria established by a task analysis of each of the two learning tasks. The eighty-frame linear programs and the sixty-page scrambled booklet branching program were developed by the experimenter to present the information for the first learning task in the same sequence used in the textbook. Multiple-choice criterion tests were developed by the experimenter to measure learning of two learning tasks. The 240 experimental subjects were from grades seven, eight, and nine of a junior high school. Grade level was used to assign subjects to the three levels required by the experimental design.

Findings and Conclusions:

1. There was no statistically significant differences in achievement on the initial learning test or the retention test for the first learning task, or on the initial learning test for the second learning task among groups receiving instruction on the first learning task by means of the textbook selection, the linear program, or the branching program.
2. On all three criterion test measures, the adjusted mean of the ninth grade level was significantly higher than the adjusted means of the seventh and eighth grade levels. However, no statistically significant differences in achievement were obtained between the seventh grade level and the eighth grade level.
3. There were statistically significant differences in time required to complete the treatment for the first learning task among groups receiving the experimental treatments. Groups receiving the linear program required the greatest amount of time, followed by groups completing the branching program. Subjects completing either the linear program or the branching program.

SOURCE SHEET FOR SUMMARIES OF STUDIES OF INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Houska (Last name), Joseph (First name), Thomas (Middle name)

Exact Title THE EFFICACY OF THE CLOZE PROCEDURE AS A READABILITY TOOL ON TECHNICAL CONTENT MATERIAL AS USED IN INDUSTRIAL EDUCATION AT THE HIGH SCHOOL LEVEL.

Degree granted Ed.D. Date 1971 No. of pages in report 190

Granted by University of Illinois (Name of Institution) Urbana, Illinoia (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To ascertain the effectiveness of the cloze procedure as a readability tool for assessing the readability of printed, technical content, instructional materials.

Source of Data and Method of Study:

Nine technical content passages, three each from the Automotive, Woods, and Electronics fields, were selected and re-written to three levels of readability by the Flesh R.E. formula. Cloze and Comprehension tests were developed over each passage. The Cloze test was administered first, before the subjects had read the passage. Eleven days later, the subjects read the passage and responded to the comprehension tests questions. With the subjects stratified on 3 levels of reading ability, analyses were based on these test results.

Findings and Conclusions:

1. Cloze tests correlated with comprehension tests; Pearson r .383 to .609, over the same technical content passage. Significant at .05 level.

2. Cloze tests rank ordered the nine passages similarly to comprehension tests, rhos = .86 to .98, across reading ability groups. Significant at .05 level.

3. Cloze tests exhibited significant differences between reading ability groups; F ratios, 4.80 to 15.22 p 5.05 for 2 & 96 df.

4. Cloze tests rank ordered the 3 technical fields similar to the comprehension tests, rho = 1.00.

5. Cloze tests ranked the three technical content passages of each technical field similar to the Flesch R.E. formula, rhos = .50 to 1.00 with 3 ranks.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Howe (Last name), Trevor (First name), Gene (Middle name)

Exact Title PILOT STUDY OF VOCATIONAL-TECHNICAL EDUCATION IN TWELVE NORTH IOWA COUNTIES.

Degree granted Ph.D. Date 1963 No. of pages in report 196

Granted by Iowa State University (Name of Institution) Ames, Iowa (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To serve as a pilot study to determine the need for and interest in vocational-technical education.

Source of Data and Method of Study:

Eighty-eight school in twelve north Iowa counties were included in the pilot study. The ninth grade enrollment lists for the school years 1952-1953, 1954-55, and 1956-57 were used. Questionnaires were mailed to 2440 former students and were returned by 1836. The respondents consisted of 51 percent (932) males and 49 percent (904) females.

Findings and Conclusions:

1. Almost 35 percent of the farm reared males and 50 percent of the non-farm reared males continued their formal education beyond high school.
2. The distribution of respondents concerning migration was: 44.8 percent remained in the county, an additional 33 percent were still in the state, and 22.5 percent had moved out of the state.
3. Of the respondents 8.2 percent were drop-outs and 91.8 percent were high school graduates.
4. The three high school courses rated highest were: males ranked mathematics first, English second and science third; females ranked English first, bookkeeping second and mathematics third.
5. The vocational counseling service appeared to have been very inadequate as indicated by the respondents.
6. Vocational trade and industrial courses were almost nonexistent.
7. The respondent's responses as to what they did the first year after high school were: approximately 41 percent of the males and 48 percent of the females continued their formal education; one fourth of the respondents were employed in an unskilled occupation; slightly over 13 percent of the males entered farming; almost 12 percent of the females became full-time homemakers.
8. A high interest was expressed by the respondents for taking vocational courses, if they had been offered in high school.
9. Respondents indicated a high interest and desire to enroll in post-high school technical, trade or vocational training programs.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Hull (Last name), Thomas (First name), Franklin (Middle name)

Exact Title AN EXPERIMENTAL STUDY OF THE EFFECT OF PRACTICE ON THE PERFORMANCE OF TASK ANALYZED OPERATIONS.

Degree granted Ed.D. Date 1964 No. of pages in report 132

Granted by University of Illinois (Name of Institution) Urbana, Illinois (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To provide additional evidence concerning the effect of practice on the performance of certain operations or tasks.

Source of Data and Method of Study:

The subjects were 126 students from a large, urban high school located in the midwest. The students ranged in age from 14 through 18, and were males and females. The major statistical treatment was a treatments times levels, three by two, factorial, mixed model analysis of variance. There were two levels of mental ability (higher and lower) and three treatment groups: practice, repetition of training, and a control group.

The treatment design followed the same pattern for both the intellectual task and the manipulative task. An initial training period concerning the particular task was given to all subjects. Three treatment groups were then formed for purposes of practice, repetition of training, and control. All subjects were then given a criterion test relative to the task.

Findings and Conclusions:

1. The higher intellectual level group was superior to the lower intellectual level group at the performance of the intellectual task.
2. The practice group was superior to the no-practice group at the performance of the manipulative task.
3. The female group was superior to the male group at the performance of the manipulative task.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Husung (Last name), William (First name), T.,Jr. (Middle name)

Exact Title A STUDY OF THE DRAFTING CURRICULA IN CALIFORNIA COMMUNITY COLLEGES BASED ON A TASK ANALYSIS.

Degree granted Ed.D. Date 1970 No. of pages in report ________

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. The effects of automation on the needs of industry for draftsmen with general versus specialized training.
2. To determine the curricular revisions in vocational drafting programs in California community colleges to meet the needs of industry.

Source of Data and Method of Study:

A survey of the 87 public two-year colleges in California was made to determine the types of drafting programs offered and to learn the effects of automation on the drafting curricula. On the basis of this survey, 20 colleges were selected for visits and 45 instructors were interviewed to determine the course content and emphasis in their drafting programs. Interviews with 219 draftsmen and 58 drafting supervisors in industrial and professional offices were conducted to learn the needs of draftsmen in the five major areas of drafting: architecture, civil, electronics, mechanical and structural engineering. A check list of 177 job skills and tasks was used in the interviews of draftsmen as they might vary in the major fields and to compare their needs with the skills and knowledges emphasized by drafting instructors.

Findings and Conclusions:

Of the 87 public junior colleges in California, 81 responded to the survey, and 67 reported some type of vocational drafting program. The drafting programs offered by the colleges in order of the frequency named were: general drafting 53, architectural drafting 45, mechanical drafting 44, electronics drafting 31, civil drafting 20, and structural drafting 15. Nine other specialized drafting options were reported, but none of them by more than one college. The draftsmen in industry indicated that they had very little need for skills or knowledge regarding computer-aided drafting at that time, and if any training was needed in the future, it would probably best be done on the job to suit the types of equipment used by each company. Drafting personnel recommended flexibility at least to the point of being able to work in two related fields as electronic and mechanical drafting or architectural and structural drafting, so that beginning draftsmen could work for the same company in other fields when work loads required re-assignments of personnel.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Jackman (Last name), Duane (First name), Alan (Middle name)

Exact Title INDUSTRIAL ARTS COMPETENCIES IN TRAINING OCCUPATIONAL THERAPISTS: A CRITERION STUDY OF THE INDUSTRIAL ARTS COMPETENCIES REQUIRED BY OCCUPATIONAL THERAPISTS WITH IMPLICATIONS FOR CURRICULUM REQUIREMENTS AND TEACHING PROCEDURES.

Degree granted Ph.D. Date 1961 No. of pages in report 260

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine what industrial arts competencies were employed by the occupational therapists in Minnesota.

Source of Data and Method of Study:

The study was confined to the state of Minnesota. To obtain information a variety of observational techniques were employed, namely: the Personal Data and Job Questionnaire Form, Interview, Card Sort, Diary, and Log.

Findings and Conclusions:

1. Few therapists had instruction in trade and job analysis and vocational guidance.
2. Most skill classes taken by therapy students were offered by art and industrial arts departments.
3. Woodwork and crafts accounted for over 70 per cent of the instructional elements used by therapists.
4. Hobbies provided an auxillary source for the developments of skills and knowledge by the therapists.
5. Very little time in in-service training programs was devoted to matters pertaining to skill development.
6. Doctors occasionally prescribed the modalities in patients referrals, but allowed the therapists to choose the projects.
7. Subjects used by over half the therapists working with patients were, in order of frequency of use: hand woodworking, leather, stenciling, floor loom weaving, ceramics, art metal, linoleum block, and metal enameling.
8. More than four out of five therapists used audio-visual aids in treating patients.
9. Other than their own journal the periodicals used in treatment of patients according to frequency of use were: Popular Mechanics, the Delta Gram, Popular Science, and the Home Craftsman.
10. Approximately half of the therapists had been requested to lay out a clinic floor plan, while one-fourth of them were required to submit a budget periodically.
11. About two out of three therapists were employed in institutions which kept an institutional inventory, while one out of three kept an inventory of his own.
12. Most therapists were responsible for ordering and maintaining tools and equipment but only one-fifth had taken such instructions.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Jackson, Thomas, Alton
(Last name) (First name) (Middle name)

Exact Title TECHNICAL JOB OPPORTUNITIES FOR NEGROES IN THE ATLANTA METROPOLITAN AREA.

Degree granted Ed.D. Date 1962 No. of pages in report 217

Granted by University of Tennessee Knoxville, Tennessee
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was designed (1) to locate technical job opportunities in the manufacturing industries of the Atlanta Metropolitan Area, (2) to locate new job opportunities for Negroes in technical occupations, (3) to determine the job requirements of technicians in the manufacturing industries contacted, (4) to determine the educational requirements necessary for acceptance in these jobs, (5) to draw implications from these job opportunities and educational requirements for curriculum planning, and (6) to develop a pattern of procedure for the continued collection and interpretation of data pertinent to the establishment and improvement of vocational-technical schools in comparable situations.

Source of Data and Method of Study:

Two instruments, a questionnaire and an interview guide, were developed to secure the data necessary to accomplish these purposes. The first of these instruments, a questionnaire, was mailed to 297 manufacturing industries employing at least fifty-one persons and possessing a two, three, or four digit standard industrial classification number. One hundred and twenty-five of these industries responded with usable data. The second of the instruments, an interview guide, was used to record data gleaned during personal interviews with representatives of seventeen of the responding manufacturing industries.

Findings and Conclusions:

It was concluded that there was sufficient technical demand in the manufacturing industries contacted to justify offering technical curricula in areas such as electrical, electronic, engineering , and mechanical technology. It was further concluded that the employment of Negroes in technical occupations is exceedingly small, but conditions have improved relative to the increased availability of job opportunities for qualified Negroes. While the economic climate seems to warrant or even demand their employment, sociological considerations have been utilized as the primary barrier to immediate placement. Also, the lack of educational opportunities in areas technically oriented has further retarded employment.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author James, Calvin, E.
(Last name) (First name) (Middle name)

Exact Title AN ANALYSIS OF THE EFFECTIVENESS OF VOCATIONAL-INDUSTRIAL DAY-TRADE PREPARATORY PROGRAMS IN ARIZONA HIGH SCHOOLS.

Degree granted Ed.D. Date 1963 No. of pages in report 267

Granted by Arizona State University (Name of Institution) Tempe, Arizona (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To ascertain the effectiveness and adequacy of vocational-industrial day-trade preparatory programs in Arizona high schools.

Source of Data and Method of Study:

Data concerning 409 former day-trade graduates and drop-outs representing the 1954-55 and 1959-60 school years were obtained from an information form. Additional data concerning 166 employers were obtained in a similar manner. Also, day-trade instructors throughout the state were interviewed in order to further evaluate the various programs.

Findings and Conclusions:

On the basis of data available, it was concluded that procedures used for the selection of vocational-industrial day-trade preparatory students in Arizona high schools were inadequate. In general, it was concluded that the day-trade preparatory programs in Arizona high schools were effective in preparing persons for their occupations, as evidenced by general satisfaction on the part of their employers. Finally, it was concluded that the placement services provided by the schools in assisting students in entering the occupations for which they were prepared, and the follow-up services provided by vocational-industrial preparatory programs throughout the state, were, in most cases, both ineffective and inadequate.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Jelden (Last name), David (First name), Lawrence (Middle name)

Exact Title PREDICTING SUCCESS IN AN INDIVIDUALIZED MULTI MEDIA INSTRUCTION PROGRAM USING VARIABLES OF APTITUDE AND PERSONALITY

Degree Granted Staff Study Date Fall 1971 No. of pages in report 151

Granted by University of Northern Colorado (Name of institution) Greeley Colorado (City, State)

Where Available Microfilm ( ) Microfiche (x) E.R.I.C. (x)

Purpose of Study

To investigate the effectiveness of predicting success and/or failure in an individualized, multi-media learning environment. Answers to the following were sought. (1) Relationship between achievement and factors of personality/ aptitude. (2) Relationship between achievement and factors of personality/aptitude and selection of media used. (3) Attitudes of learners toward multi-media, individualized, self-pacing program (Learner Controlled Education) (4) Recommendations for improvement in learning for the LCE program.

Source of Data and Method of Study

A two-year study of 193 students in 7 classes of electronics operated on an individualized, multi media basis. Tests of aptitude (general aptitude test battery, U.S. Employment Service) and personality needs (Edwards Personal Preference Schedule) were used to obtain raw data. In addition, a survey instrument and anecdotal records were used to obtain the attitudes of learners about the the program.

Findings and Conclusions

(1) Success or failure in individualized instruction can be predicted 95 times out of 100 if the scores on general learning aptitude and intraception are above the norm and scores in abasement, autonomy, and affiliation are below the norm. (2) Visual or lecture media were preferred over verbal or written media by most students, although the type of media used first did no have a great deal to do with success or failure. (3) Scores on the GATB are more helpful in making successful predictions than are scores on the EPPS. (4) Achievement on the objective test did not differ greatly from scores on the performance test. Therefore, students did not show a marked difference between psycho-motor and cognitive learning when compared to aptitudes and personality needs. (6) Approximately 2/3 of the students prefer an individualized, multi-media environment over a traditional teacher dominated, lock step learning environment. (7) The anxiety and frustration level of students in the multi-media environment was less than that experienced in a traditional program at the end of the course. (8) Students do not generally know their aptitude and personality characteristics and how to specifically structure a learning procedure based on these characteristics. (9) The biggest disadvantage of a multi media, self-pacing environment is the lack of self-motivation exhibited by the students to initiate the learning by themselves. Outside pressure is needed to initiate the process.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Johnson (Last name), Franklin (First name), Reible (Middle name)

Exact Title METHODS AND TECHNIQUES PRACTICED IN UTILIZING THE SERVICES OF LAY CURRICULUM ADVISORY COMMITTEES.

Degree granted Ed.D. Date 1969 No. of pages in report

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The preparation of a program of principles, methods, and techniques which, if applied intelligently and with sensitivity by the chairman, will become a tool for more effectively utilizing the problem-solving potential of curriculum lay advisory committees.

Source of Data and Method of Study:

1. A study of the literature pertaining to group leadership and committees,
2. The writer's experience in working with lay advisory committees as organizer and chairman
3. The response to the product of one and two by ten experienced educators.

Findings and Conclusions:

In preparing recommendations resulting from this study, the writer expresses his belief that the principles, methods, and techniques reported here provide a sound basis for organizing and conducting curriculum lay advisory committees. He thinks that long participation does not, of itself, create a knowledge of all the practices made available to a committee chairman having long records of success may still learn of ways to increase their effectiveness.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Johnson (Last name), Robert (First name), Irving (Middle name)

Exact Title DESIGN COMPETENCIES OF BEGINNING STUDENTS IN WOODWORKING.

Degree granted Ph.D. Date 1958 No. of pages in report 311

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To identify special problems which students face in designing their own projects and to explore suitable teaching techniques which promote experimental research in project design.

Source of Data and Method of Study:

Two sections in an introductory woodworking class for prospective elementary teachers with little or nc wood working experience, at the University of Minnesota, spring, 1957, constituted the samples. Additional sections taught the previous and following quarters helped to confirm certain findings and to establish the representativeness of the spring, samples.

Instructional materials, specially developed for the study, stressed a problem approach to project planning; emphasis was placed upon application of principles of good design. Information about outcomes was obtained by use of pre and post-tests of subject-matter information, personal information sheets for student responses, daily anecdotal-type instructor diaries, periodic written student reactions, individual folders of work-note for each and a photographic record of projects.

Findings and Conclusions:

1. Students in woodworking should be encouraged to begin project planning early and to develop tool skills and other desired outcomes in conjunction with the execution of these projects.
2. The problem solving approach is effective in the development of instructional materials for project planning.
3. Students should be stimulated in contemporary design through instruction in design as problem solving and through exposure to simple basic examples of geometric simplicity in project construction.
4. The present study has demonstrated some of the difficulties inherent in research on project design and also the need for additional effort to clarify some of the major factors influencing creativity in design.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Jolly (Last name), Frank (First name), Henry (Middle name)

Exact Title AN EXPERIMENTAL APPROACH TO CLASS LECTURE AND DEMONSTRATION TECHNIQUES IN TEACHING INDUSTRIAL ARTS.

Degree granted Ph.D. Date 1970 No. of pages in report 157

Granted by Iowa State University (Name of Institution) Ames, Iowa (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To design, build and test a group of functioning teaching devices to investigate their capability to improve concept formation for industrial arts students.

Source of Data and Method of Study:

Twenty-five basic concepts of hydralics were chosen, sixteen functioning teaching devices were designed and built which would completely illustrate the 25 basic concepts.

Six classes of eighth grade industrial arts students were used in the study. Pre-tests and post-test were used.

Findings and Conclusions:

Achievement A student can achieve significantly more when taught using a functioning teaching device on the overhead projector as compared to being taught with standard transparencies.

IQ Teaching with these devices levels out IQ advantages that are inherent in concept formation by a standard method of lecturing. The experimental method of lecturing also levels out IQ advantages that are inherent in retention of the concepts.

Retention The students remember the concepts they have learned when taught with the functioning teaching devices for a longer period of time than do the students who are taught by a more conventional method.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Karr, Donald, Lee
(Last name) (First name) (Middle name)

Exact Title PROBLEMS AND PERCEPTIONS OF PRACTICAL NURSING INSTRUCTORS IN RELATION TO THEIR TRADE AND INDUSTRIAL TEACHER EDUCATION PROGRAM.

Degree granted Ph.D., Date 1969, No. of pages in report 184

Granted by The Ohio State University Columbus, Ohio
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

An indepth study of Ohio's present program of trade and industrial teacher education for practical nursing instructors.

Source of Data and Method of Study:

150 developed questionnaires were sent to selected practical nursing instructors, thus providing the data. From this data, a profile of Ohio's practical nursing instructors, an assessment of the help received by instructors from teacher education, potential problems of beginning instructors, perceptions of teacher education programs, and perceptions of teacher educator's roles were examined.

Findings and Conclusions:

1. Practical nursing instructors have a considerable number of problems in their first four years of in-service teacher education.
2. Instructors in vocational practical nursing programs, tend to agree on their identification of the major problems of beginning practical nursing instructors.
3. The prior educational preparation of practical nursing instructors has some difference on the number or types of instructional problems encountered by instructors.
4. The trade and industrial teacher education program provides help to most beginning practical nursing instructors.
5. The present program of teacher education of practical nursing instructors requires some change to remain relevant.
6. The perceptions of practical nursing instructors about the type of education needed is not significantly different from their present program.
7. Practical nursing instructors tend to agree in perception of their teacher educator programs.
8. The role of the teacher educator as perceived by the practical nursing instructors is very similar to the actual role of the teacher educator.
9. The role of the teacher educator as perceived by the practical instructors is very similar to the actual role of the teacher educator.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Kassay (Last name), John (First name), Anthony (Middle name)

Exact Title FEASIBILITY OF LEARNING HAZARDOUS MACHINE OPERATION SKILLS BY MEANS OF A SELF-INSTRUCTIONAL SYSTEM.

Degree granted Ed.D. Date 1970 No. of pages in report 229

Granted by Washington State University (Name of Institution) Pullman, Washington (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The study describes the organization, administration, and evaluation of a total self-instructional system designed to teach students safe and efficient methods employed in the operation of an intricate woodworking machine.

Source of Data and Method of Study:

Instructional components appropriate to the instructional task were designed and built. Four single concept films with sound, four illustrated linear programmed instruction books, and three laboratory performance sessions were synchronized into a self-administering presentation. The study population consisted of fifty students representing ten learner classifications. The scholastic grade levels included junior, senior, and high school equivalent, vocational education trainees, college students, and out-of-school adults. The age range was thirteen to seventy-two. Female students were represented. Forty-five students were chosen from various school in the Bay area of San Francisco, California, and five from Pullman, Washington.

Findings and Conclusions:

Analysis of student accomplishment in knowledge gain and laboratory performance supports the feasibility of the total self-instructional approach for teaching knowledges and skills associated with operating a complex and potentially dangerous machine. A significant number of participants met the high jury-established performance standards. Average length of time to complete the system was two hours and ten minutes. The level of achievement of some groups was higher than for others. Analysis of the data supports utilization of a system for introducing radial arm saw operation to high school students and adults. Employment in the junior high school is discouraged due to the maturity level of these students and their general lack of related experience.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Kavanaugh (Last name), William (First name), Arnold (Middle name)

Exact Title ELECTRICITY IN THE SECONDARY SCHOOL: A STUDY OF THE OBJECTIVES AND ACITVITIES OF ELECTRICAL INSTRUCTION IN THE SECONDARY SCHOOL.

Degree granted Ph.D. Date 1955 No. of pages in report 313

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To obtain an inventory of electrical content desirable for industrial arts instructio in the secondary school.

Source of Data and Method of Study:

The review of the literature included a perusal of twenty theses, twenty-two city and state courses of study, twenty-three popular textbooks, and five current periodicals covering a ten-year span from 1944-54. Numerous "How-to-do-it" pamphlets and booklets were examined for interests and trends of electrical activities of youth and adults. A review of curriculum references was made as an aid in designing a method for conducting the study.

Findings and Conclusions:

The final inventory contained 151 statements and 729 items and was presented in terms of a three-fold classification: J-- meaning the item was desirable as a goal for a beginning course, one semester, junior high school; J-S--the item was a desirable goal for either junior or senior high school; S-- desirable for an advanced class, senior high school.

The final electrical inventory developed in this study is not to be considered as a course of study, but as a basic tool which can be of value for a variety of instructional purposes, including course planning, development of evaluation instruments, an preparation of instructional materials. In like manner it should be valuable for supervisory purposes and electrical teacher education planning.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Kavich (Last name), Lawrence (First name), Lew (Middle name)

Exact Title DRIVER EDUCATION AND TRAINING LEGISLATION IN CALIFORNIA PERTAINING TO PUBLIC SECONDARY SCHOOLS, 1947-1959: A STUDY IN GROUP INFLUENCE.

Degree granted Ed.D. Date 1964 No. of pages in report ________

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine the ways in which influential forces legislate educational curriculum requirements in California.

Source of Data and Method of Study:

The study includes review of action regarding public school driver education from 1947, when the initial bill was introduced, to 1959. A jury of experts, selected to determine the most significant legislation for the twelve-year period, recommended five statutes upon which to base interviews designed to ascertain group influence on passage of these bills. Representatives of each group active in the legislative process of driver instruction comprised the interviewees in an open-ended interview schedule. Influence of group representatives, of groups, and the techniques used for attaining legislative goals, were reported. Following the interviews, of which there were forty-five, each question was coded and put into tables of proportion to show the comparative influences of educational and noneducational groups.

Findings and Conclusions.

The findings revealed that most influential groups interact with many other groups, associate themselves with other groups having diversified interests, and use legislative methods which are interdependent among all groups. Specifically, it was found that: (1) educationists move slowly in legislative matters; (2) educational groups have a strong potential of legislative influence; (3) educationists are frequently unwilling to work with noneducational groups; (4) the mandatory curriculum of this study is continually in a state of legislative flux; (5) educational groups face their major opposition from within their own profession.

It is recommended that (1) professional educators assume leadership roles in legislative activities affecting educational curricula; (2) educational curriculum legislation be attempted only when a united front of related and diversified groups support the issue; (3) curriculum legislation have the leadership of an influential legislator who can obtain the assistance of several colleagues; (4) educational forces continually be aware of community needs and take appropriate legislative initiative to meet such needs; (5) mandatory curricula be legislated only when they can properly be financed.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Kelly, William, Thomas
(Last name) (First name) (Middle name)

Exact Title A STUDY TO DEVELOP GUIDE FOR PLANNERS OF INDUSTRIAL EDUCATION FACILITIES IN COMPREHENSIVE HIGH SCHOOLS OF URBAN DISTRICTS.

Degree granted Ed.D. Date 1966 No. of pages in report

Granted by University of Pennsylvania Philadelphia, Pennsylvania
(Name of institution) (City, State)

Where Available Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to locate, identify and classify the teaching-learning facility needs for programs of industrial education in an urban comprehensive high school and to develop an instrument to be used as a guide for preparing specifications by all persons who have a responsibility in planning these specialized educational facilities.

Source of Data and Method of Study:

The study dealt specifically with the architectural and engineering specifications for industrial education facilities. It sought to ascertain the fundamental principles of good plant planning. Forth statements containing basic principles of educational importance were obtained from selected literature sources. These statements were checked for their occurrence in the literature in order to establish a rank order measure of their importance.

Findings and Conclusions:

The literature review revealed the need for more functional educational facilities; facilities flexible enough to meet both current and future needs of industrial education; facilities varied enough to serve the needs of the community.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Ketcham (Last name), George (First name), Wesley (Middle name)

Exact Title THE SPECIALIZATION FACTORS IN CONNECTICUT PUBLIC HIGH SCHOOL INDUSTRIAL ARTS PROGRAMS.

Degree granted Ph.D. Date 1963 No. of pages in report 143

Granted by The University of Connecticut (Name of Institution) Storrs, Connecticut (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To identify the significant specialization factors in the secondary school industrial arts programs in Connecticut public schools.

Source of Data and Method of Study:

In addition to the status data obtained from official State Department of Education records, an opinionaire was mailed to educators in ninety-one selected public high schools. A personal follow-up visitation was made to those school representatives whose returns were not received or were incomplete. Eighty-nine, or 98 per cent, of the schools selected were represented in the returns used in this study. The specialization factors identified were listed under the following categories: administrative organization, attitudes, community characteristics, curriculum patterns, facilities, needs of youth, state and local relations, and teachers.

Findings and Conclusions:

1. Industrial arts programs in Connecticut public school emphasized the traditional areas of drafting, woods and metals. Little attention was paid to developments in electricity, electronics, and power mechanics.
2. Many educators felt that secondary schools should be encouraged to provide more intensive specialization in their shop and drafting programs for the development of "marketable skills" through specialization in a major area based upon a sequence of broad area coverage.
3. Most educators indicated a need for further clarification of the respective roles of state vocational-technical schools and industrial arts programs in local public high schools.
4. Educators expressed a need for more terminal courses in industrial arts.
5. There was an expressed need for more qualified teachers with more intensive training and broader experience in specialized areas.
6. There was no definite pattern for work experience education programs in Connecticut.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Kirkwood (Last name), James (First name), John (Middle name)

Exact Title A COMPARATIVE STUDY OF ADVANCE ORGANIZERS IN A CLASSROOM PRESENTATION IN INDUSTRIAL ARTS.

Degree granted Ph.D. Date 1970 No. of pages in report 142

Granted by Purdue University (Name of Institution) Lafayette, Indiana (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The study attempted to determine the effect of different types of written introductions on the learning of content from oral lectures on mass production concepts.

Source of Data and Method of Study:

Undergraduate elementary education majors enrolled in an industrial arts course served as the population. Three of five available classes were randomly selected to provide subjects for the experiemnt. Students from these classes were randomly assigned to the three experimental conditions. A non- equivalent control group, comprised of elementary education majors who had not yet taken the required industrial arts course, was used to evaluate the extent to which uninstructed students could respond to questions on the criterion instrument.

Findings and Conclusions:

The three experimental groups exposed to advanced organizers or general overviews, "typical" or motivational introductions, and placebo or unrelated introductions and then receiving three consecutive lectures did not differ significantly on the criterion instrument.

The three treated groups performed significantly better on the criterion instrument than did the non-equivalent control group.

Three comparison groups which read the three types of introductions but did not receive further instruction did not differ significantly as measured by the criterion instrument.

Experiemental groups were divided into ability groups based on SAT Verbal scores. The high ability groups performed at significantly higher levels than did the lower ability groups. No interaction between ability and treatment was found.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Kynard, Alfred, Tennyson
(Last name) (First name) (Middle name)

Exact Title CRITERIA FOR DETERMINING THE VALUE OF WORK EXPERIENCE FOR TEACHERS OF TRADE AND INDUSTRIAL EDUCATION.

Degree granted Ed.D. Date 1960 No. of pages in report 199

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

(1) to make a limited examination of the importance of work experience in education from the Renaissance period to 1900; (2) to examine the concept of work experience as a basic requirement for trade and industrial teaching the United States between the years 1906 and 1920; (3) to formulate criteria that will be helpful in determining the value of work experience for trade and industrial teachers; (4) to establish relative values for these criteria through ratings from a qualified jury of selected individuals; (5) to construct a rating instrument which will facilitate the use of the effective criteria derived from this study.

Source of Data and Method of Study:

Two methods were employed in the conduct of this study, the first of which was library research. The libraries from which this information came were the Main Library the Education Library, and the Vocational Education Library of the University of California, Los Angeles, and the Los Angeles Public Library. The second method employed in the conduct of this study was the correspondence approach obtained by circulating questionnaires and opinionnaires among administrative officials of trade and industrial education.

Findings and Conclusions:

The criteria that are recommended for use as a result of this study are those that should be considered when new trade and industrial teachers are interviewed for employment purposes.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author LaBounty (Last name), Hugh (First name), Orvice, Jr., (Middle name)

Exact Title EDWIN AUGUSTUS LEE: PORTRAIT OF AN EDUCATOR

Degree granted Ed.D. Date 1961 No. of pages in report 347

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To portray the professional life of Edwin Lee in many of its dimensions and to describe in some depth his major contributions to education.

Source of Data and Method of Study:

Interviews were made with Dr. Lee, nineteen persons who have been associated with Dr. Lee at some stage in his career, and from his wife and two sons. Materials from the files of the Chancellor's Office and the School of Education at U.C.L.A., and the Division of Vocational Education of the University of California were utilized.

Findings and Conclusions:

The organizational plan of this study is chronological, although occasional deviations have been made for the sake of clarity. Chapter II, "The Formative Years," deals with Dr. Lee's early life and education. Chapter III, "His Work in Vocational Educatic covers his career as a professor of vocational education at several institutions and his subsequent contributions to that field. Chapter IV, "His Superintendency," describes his activities as superintendent of the San Francisco Unified School District. Chapter V, "His Directorship of the National Occupational Conference," portrays his leadership of that highly influential organization and also covers his professorship at Columbia University. Chapter VI, "His Contributions as Professor and Dean," is concerned with his labors for the School of Education at U.C.L.A. Chapter VII, "His Philosophy and Contributions to American Education," details the many and varied contributions he made to education in this country. A chronology which demonstrates the breadth and scope of Dr. Lee's professional responsibilities is included in the appendix.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lahren (Last name), James (First name), Adam (Middle name)

Exact Title AN EXAMINATION OF THE ROLE OF OCCUPATIONAL ADVISORY COMMITTEES IN STATE UNIVERSITY OF NEW YORK AGRICULTURAL AND TECHNICAL COLLEGES AS PERCEIVED BY THE COMMITTEE MEMBERS.

Degree granted Ed.D. Date 1970 No. of pages in report 157

Granted by State University of New York at Buffalo (Name of Institution) Buffalo, New York (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To investigate and to derive answers to specific questions regarding the role of occupational advisory committees in postsecondary occupational education programs as perceived by the committee members.

Source of Data and Method of Study:

Used as the sample were 351 committeemen, who had served for at least one year in an advisory capacity at the technical and semiprofessional associate degree curricula of three State University of New York Agricultural and Technical Colleges. It was a descriptive study employing ex post facto research design. Data, gathered by means of a two-part questionnaire, were reported and tabulated according to the descriptive statistic techniques of percentage and rank order. Of the 338 cases contacted, 81 per cent returned the questionnaire. Usable returns were received from 254 committeemen representing three-fourths of the cases contacted.

Findings and Conclusions:

A typical committeeman, in his late forties, holds a college degree, has experienced little job mobility, and is employed in a profession highly related to the curriculum he advises. He also sustained a relationship to this curriculum prior to being contacted by the department chairman for a committee appointment. Although his original term of appointment was two years, he has served on the committee between one and five years. He does not hold a concurrent advisory appointment, or did he have a prior one. He travels a roundtrip distance under 200 miles to attend one of the semi-annual committee meetings. He neither receives nor seeks financial reimbursement from the college, but his services are nominally recognized through the institution's catalog. Although he received sufficient orientation to the program when appointed, he has not been given an opportunity to interact with other college advisory committees which he perceives would have been beneficial. He attests to the adequacy of the program he advises ; nonetheless, he feels the college could more effectively utilize his expertise.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - NAITEE - ACIATE

Author Larson (Last name), Curtis (First name), G. (Middle name)

Exact Title BEHAVIORAL OBJECTIVES IN THE AFFECTIVE DOMAIN FOR INDUSTRIAL EDUCATION TEACHERS

Degree granted Ed. D., Date July, 1971 No. of pages in report 164

Granted by Utah State University (Name of institution) Logan Utah (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To develop and test the effectiveness of the guide to assist industrial education teachers to write affective behavioral objectives.

Source of data and method of study:

An experimental study involving 150 industrial arts teachers sampled in graduate classes at nine (9) universities from California to Tennessee. The teachers were given 3 different amounts of information and were asked to choose a topic from the information provided to write an affective behavioral objective.

Findings and Conclusions:

1. The majority of industrial education teachers cannot write affective behavioral objectives without reference materials.
2. A significantly greater proportion of industrial education teachers were able to write affective behavioral objectives when provided with the affective behavioral objectives writing guides developed for the study.
3. A significantly greater proportion of the industrial education teachers were able to write affective behavioral objectives at specified levels of the Taxonomy of the Affective Domain when they were furnished with the writing guides developed for the study.
4. Preservice and inservice training programs are needed to teach industrial educators about the affective component in learning and how to write behavioral objectives for use in curriculum planning.
5. The use of affective behavioral objectives in teaching industrial education subjects may produce more graduates who have not only the psychomotor skills to obtain jobs, but the attitudes and interpersonal skills necessary to retain those jobs.
6. Industrial education department members need to devote more time to the develpment of intermediate and long range affective goals which could be evaluated by follow-up studies as a means of improving instruction.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lauda (Last name), Donald (First name), Paul (Middle name)

Exact Title FACTORS RELATED TO THE GRANTING OF COLLEGE UNIVERSITY CREDIT FOR TRADE AND INDUSTRIAL EXPERIENCE IN INSTITUTIONS OFFERING INDUSTRIAL EDUCATION.

Degree granted Ph.D. Date 1966 No. of pages in report 106

Granted by Iowa State University (Name of Institution) Ames, Iowa (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine the factors related to the granting of college and university credit for trade and industrial experience in those institutions offering an industrial education curriculum.

Source of Data and Method of Study:

The data was obtained from questionnaires completed by the department head of every institution in the United States and Puerto Rico which had an Industrial Education Curriculum.

Findings and Conclusions:

The practice of granting college or university credit for trade and industrial experience is not new. It began in 1920 and every institution which has begun such a policy has used it as a continuous policy to date. Of the 201 institutions contacted in this investigation, 49 or 24.38 percent, grant such credit. This practice is expected to increase to 43.9 percent of the institutions.

Three prerequisites were found to be required by most of the institutions in granting such credit. They were: (1) enrollment in the institution, (2) sufficient trade or industrial experience, and (3) passing marks in one or more examinations covering the candidates vocational competency. Three types of tests were generally used, skill, written, and oral.

Over one-half of the institutions grant the credit earned immediately upon completion of the examinations. The remainder of the institutions grant a specific number of hours per session.

Less than one-half of the institutions reported that the State Department of Public Instruction approves the candidate before credit can be granted for his experience.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lease (Last name), Alfred (First name), Arnold (Middle name)

Exact Title AN EXPERIMENTAL COMPARISON OF LINEAR PROGRAM AND STANDARD TEXTBOOK IN LEARNING BASIC ELECTRONICS.

Degree granted Ph.D. Date 1964 No. of pages in report 235

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study concerned itself with an investigation of the two methods to determine which, if either, was superior.

Source of Data and Method of Study:

The experimental population consisted of all freshmen who registered, during the fall of 1963, for industrial arts at St. Cloud College. The Triggs Reading Test and the American College Testing Program examination, two measures of academic aptitude, were used to test the equality of the two experimental groups. An electronics test measured pre-experimental achievement in the subject area. Students were randomly assigned to one of four cells on the basis of pre test scores.

Findings and Conclusions:

1. There were no significant differences in the effectiveness of the Skinnerian linear program and the testbook, as measured by the amount of electronic factual material initially learned.
2. There were no significant differences in the effectiveness of the Skinnerian linear program, and the textbook, as measured by the amount of factual material retained after six weeks.
3. There were no significant differences in the effectiveness of the Skinneraian linear program, and the textbook, as measured by the ability of students to apply electronic facts and principles initially learned.
4. There were no significant differences in the effectiveness of the Skinnerian linear program, and the textbook, as measured by the ability of students to apply electronic facts and principles retained after six weeks.
5. There was no significant interaction between the two methods and pre-experimental achievement in electronics as measured by the four criteria listed above.

Both the linear program and textbook fared approximately equally well. It should be borne in mind, however, that the textbook was especialy prepared to parallel the general frame of reference, and the contents of the program. It therefore differed from other attempts which may use a textbook uncommon to the program.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Leavitt (Last name), William (First name), Carr (Middle name)

Exact Title THE RELATIONSHIPS AMONG PERFORMANCE IN STUDENT TEACHING, SCORES ON THE NATIONAL TEACHER EXAMINATIONS, AND GRADE-POINT AVERAGES IN PROFESSIONAL COURSES AND IN THE FIRST TEACHING FIELD.

Degree granted Ed.D. Date 1969 No. of pages in report 131

Granted by North Texas State University (Name of Institution) Denton, Texas (City. State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This was a study of the relationships among performance in student teaching, scores on the National Teacher Examinations, gradepoint averages in professional courses, and in the first teaching field.

Source of Data and Method of Study:

The National Teacher Examinations scores of the students used in this study were obtained from the Guidance Office at North Texas State University.

Records of the Registrar's Office at North Texas State University were utilized in obtaining the grades earned by the student teachers in their professional education courses and the courses taken in their first teaching field.

The performance in student teaching evaluation was obtained from each university coordinator who supervised a student teacher and appraised the student teacher on the scale entitled Professional Judgment of Student Teacher Competence.

Findings and Conclusions:

1. The preparation of elementary and secondary student teachers as reflected by the scores on the National Teacher Examinationa appears to be similar.
2. The National Teacher Examinations have little value as a criterion for estimating success in student teaching.
3. The grade-point averages in professional courses and the first teaching field have little value as criteria for estimating success in student teaching.
4. The National Teacher Examinations have little value as a criterion for the certification of teachers.
5. The National Teacher Examinations are, from the evidence, achievement tests.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lewis (Last name), Myron (First name), E. (Middle name)

Exact Title AN INVESTIGATION OF THE RELEVANCY OF SELECTED AREAS OF THE INDUSTRIAL TECHNOLOGY CURRICULA TO THE EXPECTATIONS OF INDUSTRY.

Degree granted Ed.D. Date 1970 No. of pages in report 149

Granted by State University of New York at Buffalo (Name of Institution) Buffalo, New York (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This investigation was concerned with technically oriented management programs leading to a Bachelor's Degree with a major in Industrial Technology. An historical review of the development of American industry was presented, and role of the Industrial Technologist in modern industry was defined.

Source of Data and Method of Study:

Three major questions were posed to be researched. The information necessary to answer two of these questions was obtained through the use of an instrument that was developed with the assistance of four educators and four industrialists, each prominent in his field, and each from a different region of the United States. This instrument was then sent to an equal number of Chairmen of Industrial Technology Departments and industrial executives throughout the nation. The information necessary to answer the third question was obtained by means of a review of college catalogs of 48 institutions offering Baccalaureate Degree programs in Industrial Technology. This investigation was limited to the management and technical breadth areas of the curricula.

Findings and Conclusions:

This test revealed that there are eight major groups of schools which have common course offerings and that the groupings show geographic relationships.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Linton, John, A.
(Last name) (First name) (Middle name)

Exact Title AN INVESTIGATION OF THE EXTENT AND USE OF TOOLS IN THE HOME.

Degree granted Ed.D. Date 1951 No. of pages in report 199

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To investigate to what extent hand tools are used in the home.

Source of Data and Method of Study:

Data was obtained from Los Angeles adults through check lists, inventories and personal interviews. These data were analyzed and evaluated to find answers to the above questions. Various factors such as occupation, age, tenant, home owner, and school shop courses were studies as to their influence on the ownership and use of hand tools.

Findings and Conclusions:

The greatest influence on the ownership of tools was home ownership. Tools were used largely for maintenance. Although home ownership increased the interest in tools, lack of time and lack of proper tools were definite obstacles in maintenance. Grouped occupationally, those who were actively engaged in hand tool and related occupations owned the greatest number of tools. The ownership of tools increased as adults increased in age until retirement. Ninety-six per cent of the responded owned tools.

When questioned about the reasons for owning tools, the predominant reason was the enjoyment found in their use. Credit was not attributed to school shops as the chief source of knowledge in the use of tools. On further evaluation, it was found that the ownership of tools increased as the number of shop courses taken in school increased. Only a few of the respondents read literature helpful to them in the use of the tools.

Although those surveyed replied that wood shop, electric shop and home mechanics were important activities that should be taught in school, the maintenance activities they performed frequently were given as painting, gardening and appliance repair.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lopez (Last name), Guillermo (First name), (Middle Name)

Exact Title VOCATIONAL CURRICULUM PLANNING IN THE SECONDARY SCHOOLS.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To adapt the processes of systems analysis in the development of a recommended model for vocational curriculum planning.
2. To assess the effect of extensive personnel involvement in such planning.

Source of Data and Method of Study:

The writer developed and validated the following: (1) *an Instrument to Review the District-Wide Plans*, (2) *Instructions for Reviewing the District-Wide Plans*, (3) a *Recommended Model for Vocational Curriculum Planning*, (4) *Criteria by Which to Execute Steps in the Planning Model*, (5) *Functions in a 20-step Vocational Curriculum Planning Model*, and (6) an *Instrument to Rate the Extent of Involvement in Vocational Curriculum Planning*. Using the first instrument, two judges independently reviewed the district-wide plans for vocational education of twenty-three school districts throughout the State of California that were selected to constitute the sample population.

Findings and Conclusions:

A school district that demonstrates a high degree of personnel involvement in functions related to pre-planning, planning, program development, evaluation development, and budget development as defined in this study, is more likely to be a district in which effective vocational curriculum planning is taking place, than a district that does not demonstrate this involvement. The study adapted and defined in rather precise terms in a recommended model those concepts of system analysis that would generate effective vocational curriculum planning. The evidence presented here tends to support the thesis that there is value in applying the systems concept to vocational curriculum planning. Those responsible for vocational curriculum planning can use the phases, steps, and functions as a model they might implement if they desire to generate an effective vocational education curriculum. Similarly, personnel in the Vocational Education Section, California State Department of Education can continue to use the *Instrument to Review*...while reviewing the district-wide plans. Additionally, school administrators may use the *Rating Instrument*... to obtain an index relating how the district planning endeavors -- both personnel and functions -- are operating as an integral unit.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Lybarger (Last name), Alvin (First name), Eugene (Middle name)

Exact Title A Comparison of Job Satisfaction Needs of Selected Rural and Urban Industrial Education Students in the State of Utah

Degree granted Ed.D. Date ________ No. of pages in report ________

Granted by Utah State University (Name of Institution) Logan, Utah (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to investigate, ccmpare, and analyze personal-social needs of rural and urban students who were preparing for occupations in the industrial education areas.

Source of Data and Method of Study:

This study was a descriptive research which employed the survey technique using the Minnesota Importance Questionnaire. The questionnaire was administered to high school students in the state of Utah classified in two categories: 151 industrial and agricultural students enrolled in rural high schools and 91 industrial vocational students enrolled in urban high schools.

Findings and Conclusions:

The rural and urban students possessed similar vocational needs. To the entire student sample, advancement, security, and ability utilization were considered most important while independence, social status, and authority were considered least important. A small percentage of the students were actually preparing for occupations which corresponded to their selected job clusters. Both rural and urban students selected professional and semi-professional occupations as the vocational areas in which their needs would be most likely met.

Students want to work with others, but they do not want to tell others what to do. Supervisors want workers who will obey instructions and go ahead on their own to complete a task. Students have greater vocational needs than the occupations for which they are training appear able to provide. If behavioral objectives were to be written on the state level in the affective domain and with vocational needs in mind, it would appear that the objectives would be functional for both rural and urban groups. Due to the students' high vocational needs, it would be difficult for many students to find complete job satisfaction in occupations in clusters 7 and 9, which are manual occupations.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS
TRADE AND INDUSTRIAL AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE AIAA ACIATE NAITTE

Author McClellan (Last name) Larry (First name) Dean (Middle name)

Exact Title IN INVESTIGATION OF THE OPINIONS OF THE MEMBERS OF THE NINETY FIRST CONGRESS TOWARD INDUSTRIAL ARTS.

Degree granted Ed.D. Date Dec. 1971 No. of pages in report 146

Granted by University of Northern Colorado (Name of Institution) Greeley, Colorado (City, State)

Where Available Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study

The purpose of this study was to secure the concepts of Industrial Arts as held by the members of the Ninety First Congress.

Source of Data and Method of Study

Twenty statements soliciting legislative response were selected by a panel of industrial arts doctoral candidates at the University of Northern Colorado. These statements constituted the opinionaire which was sent to every member of the Ninety First Congress. Responses to the opinionaire were statistically analyzed using the standard deviation from the mean. This analysis allowed for the determination of relationships among and between choices made by respondents to the twenty statements. Respondents were divided into the following categorical variables political affiliation geographic area represented age, occupational background, and educational background.

Findings and Conclusions

Legislators agreed concerning the following (1) Industrial arts is not funded under the vocational education acts. (2) Industrial arts is not a phase of general education. (3) Industrial arts is another name for manual training. (4) Industrial arts should provide realistic training with modern up-to-date industrial equipment (5) Federal aid is necessary for industrial arts to grow and prosper.

Industrial arts has failed to properly convey its educational image to members of the national legislature.

The image of industrial arts held by national legislators is quite different from the image held by the panel of doctoral candidates from the University of Northern Colorado.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author McKee, Ronald, Ray
(Last name) (First name) (Middle name)

Exact Title TEACHER DOGMATISM AND EDUCATIONAL PHILOSOPHY AS RELATED TO THE WILLINGNESS OF INDUSTRIAL EDUCATION TEACHERS TO PARTICIPATE IN ACTIVITIES PRESENTING IMPROVED INSTRUCTIONAL PRACTICES.

Degree granted Ed.D. Date 1971 No. of pages in report 168

Granted by Utah State University Logan, Utah
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. (x)

Purpose of Study:

The purpose of this study was to collect and analyze data relevant to teacher dogmatism and educational philosophy and relate these to the willingness or unwillingness of industrial education teachers to participate in activities presenting practices of instruction improvement.

Source of Data and Method of Study:

The study population consisted of 274 industrial education teachers in the state of Utah as listed in the 1970-71 Industrial Arts Personnel Directory published by the Utah State Board for Vocational Education. The population sample was contacted by the Vocational Director for each school district and asked to complete a research instrument containing short-form Dogmatism scale, an educational philosophy scale, and a participation checklist.

Findings and Conclusions:

Findings:

1. The level of educational philosophy and the degree of Dogmatism are significantly related.
2. The level of educational philosophy and the degree of Dogmatism are each significantly related to the willingness of teachers to participate in activities presenting improved practices.
3. Years of teaching experience is significantly related to:
   a. one's degree of Dogmatism
   b. one's level of educational philosophy
   c. one's willingness to participate in activities presenting improved instructional practices.

Conclusions:

The general conclusion of the study is that teacher's attitudes, particulary those associated with dogmatism and educational philosophy do contribute significantly to the acceptance of activities presenting improved instructional practices.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author McNeill (Last name), Joseph (First name), G. (Middle name)

Exact Title THE DEVELOPMENT OF CREATIVE ABILITIES OF PERSONNEL IN PROFESSIONAL OCCUPATIONS.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by Rutgers University New Brunswick, New Jersey

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to determine if the creative problem solving ability of professional engineers and managers who were exposed to a course in creative problem solving (CPS) increases significantly over that exhibited by professional engineers and managers who have not participated in such a course.

Source of Data and Method of Study:

Three groups were compared. Twenty-four subjects completed a 27-hour course in creative problem solving, 24 subjects completed a 12-hour course in creative problem solving, and 24 subjects were in the control group. Each group was further divided into two groups with subjects having more than 10 years of professional experience in one group and subjects having less than 10 years in the other group. Subjects were assigned from a pool of engineers and managers who had elected to take a course in problem solving. Validated portions of the AC Test of Creative Ability were the criteria for measuring creative problem solving ability. Forms A and B were administered as pre- and posttests, respectively.

Findings and Conclusions:

1. Engineers and managers do benefit from exposure to an educational program of 27 hours designed to help develop and increase the creative problem solving ability of an individual whereas a program of 12 hours does not.

2. Engineers and managers with more than 10 years of professional experience were not different in problem solving ability than engineers and managers with less than 10 years of experience.

3. There is no interaction between the subjects who take the three types of treatment and years of experience.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author McVicker, Howard, Eugene
(Last name) (First name) (Middle name)

Exact Title THE DEVELOPMENT OF A STANDARDIZED ACHIEVEMENT TEST FOR GENERAL RELATED STUDIES IN INDUSTRIAL COOPERATIVE TRAINING IN INDIANA.

Degree granted Ed.D. Date 1970 No. of pages in report 257

Granted by Indiana University Bloomington, Indiana
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to develop a standardized achievement test covering the nine frequently used units from the general related study guide currently in use in Indiana Industrial Cooperative Training Programs.

Source of Data and Method of Study:

The data for the investigation were derived from testing a sample comprised of 1,015 ICT students from 53 schools in the State of Indiana. A test instrument consisting of a 100 multiple-choice items written by vocational coordinators of ICT programs covering general related content was developed and administered to the sample. The test results were analyzed, items were selected for the final test form and norm tables were developed.

Findings and Conclusions:

Generalizations from the findings of this study should be restricted to ICT populations, to the instructional materials employed, to the study instrument used, and to the testing conditions under which the study instrument was administered. To the extent that these conditions prevail, the following conclusions may be drawn:

1. Vocational coordinators of ICT programs can develop reliable achievement measuring devices covering the course content which they teach.

2. The allowance of one minute per test item is an adequate amount of time for vocational ICT students to complete four-alternative multiple-choice questions in general related content.

3. It would seem that a need and desire for a standardized evaluation instrument in ICT general related content exist.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Martinez, Pete,
(Last name) (First name) (Middle name)

Exact Title AN EXPERIMENTAL ANALYSIS OF PERCEPTUAL DIRECTION AS A FACTOR IN LEARNING A PSYCHOMOTOR TASK.

Degree granted Ph.D. Date 1970 No. of pages in report 121

Granted by University of Maryland College Park, Maryland
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose was to compare the effects of subjective and observer directions of viewing a lecture-demonstration to identify the direction which was most effective in teaching a psychomotor task via a video-taped presentation.

Source of Data and Method of Study:

The space relations section of the Differential Aptitude Tests and selected sections of the MacQuarrie Test for Mechanical Ability were administered to the experimental population. The raw scores on these instruments were used to assign the subjects to high and low sections. Two-two x two analysis of variance matrices utilizing treatment versus spatial ability and treatment versus manipulative ability were used to test the hypotheses. All the hypotheses were tested at the .05 level of significance.

Findings and Conclusions:

The findings of this study indicated that the students' perceptual direction in viewing a demonstration produced no significant differences in measureable learning on the psychomotor task. It was noted that each treatment group performed more accurately on items that were more directly related to their perceptual angle. Thus, the perceptual direction used to produce mediated instruction was not as important, as long as visual clearance and visual clarity were maintained. Futhermore, the findings indicated that spatial ability affected the learning to a greater degree than did manipulative ability.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Mauer (Last name), Donald (First name), E. (Middle name)

Exact Title A TECHNOLOGICAL RESEARCH OF CURRENT WELDING PROCESSES WITH IMPLICATIONS FOR INDUSTRIAL TEACHER EDUCATION.

Degree granted Ed.D. Date 1966 No. of pages in report

Granted by University of Missouri (Name of Institution) Columbia, Missouri (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To ascertain: (1) what welding, brazing, spraying, cutting, and related processes were utilized by American industry, (2) the present and future importance of the processes as industrial fabricating procedures, (3) the importance industrial teacher educators attach to the processes and the extent to which the processes were included in their course content in 1965 and would probably by included in their courses for 1975, (4) the status of welding technology as it was taught in baccalaureate industrial teacher education programs, and (5) what changes, if any, would be necessary to bring college welding course content in line with current industrial practices.

Source of Data and Method of Study:

The procedures used to gather the data were a search of related research materials, a survey of technical welding literature to identify current welding processes and to gather information to describe these processes, a review panel of ten industrial welding specialists to critique the process and abbreviated definitions lists, a rating check list sent to 61 industrial welding specialists, a rating check list sent to 220 industrial teacher education institutions, and an information form went to 89 instructors who taught undergraduate industrial teacher education unit welding courses.

Findings and Conclusions:

1. The welding industry is experiencing a period of intense development; extensive research efforts undoubtedly will lead to some new and perhaps revolutionary techniques for joining, shaping and severing metals.
2. Industrial teacher educators were not teaching welding content representative of American industrial practices in 1965.
3. If the industrial welding specialists' and the industrial teacher educators' predictions for 1975 materialize, industrial education welding course content will not accurately reflect industrial welding technology ten years hence.
4. Industrial teacher educators generally utilize equipment, laboratories, instructional materials, and teaching practices oriented toward the acquisition of skills and technical knowledges primarily associated with a relatively few manual welding processes utilized in the repair, maintenance, and small job shop industries.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS.
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Mehail, Spiro,
(Last Name) (First name) (Middle name)

Exact Title AN ANALYSIS OF CURRICULUM DEVELOPMENT AND A PLAN TO IMPROVE THESE PRACTICES IN MILWAUKEE AREA TECHNICAL COLLEGE.

Degree granted Ph. D. Date 1971 No. of pages in report 334

Granted by University of Wisconsin Madison, Wisconsin
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To examine the curriculum development process of the Milwaukee Area Technical College; evaluate the process based upon criteria established for each characteristic of curriculum development; and prepare an improved curriculum development plan that can be responsive to change in business and industry.

Source of Data and Method of Study:

Study was made on 100 percent of each of the following populations utilizing a combination of field survey and interview:

1. All full-time faculty of the college.
2. All faculty supervisors and departmental chairman.
3. All of the main officers of the college that participate in curriculum development.
4. All of the occupational program advisory committee members.
5. All of the business and industrial employers of greater Milwaukee with more than 150 employees.

Findings and Conclusions:

To accomplish the task of developing an improved curriculum development process will require the establishment of proper relationships between the information flow system and the internal communications of the school functioning within a framework of an operational environment that encourages a change for the improvement of curriculum.

Coupled with high utility information flowing through unencumbered paths, the operational environment of the school should allow the faculty a degree of freedom that allows them to make changes to course content and recommend changes to program content within a framework of policy and procedures that have been mutually derived, adequately communicated, and that are capable of implementation with reduced time lag. The author has proposed a curriculum development plan for the College based upon the outcome of the study1 The plan, with few modifications, can be implemented in most educational institutions.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Meier (Last name), Mary (First name), A. (Middle name)

Exact Title DEVELOPMENT OF A VOCATIONAL-EDUCATIONAL INVENTORY.

Degree granted Ed.D. Date 1969 No. of pages in report ______

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To investigate the reasons counselees give for seeking vocational-educational counseling at the UCLA Extension Counseling Center and to develop a Vocational-Educational Inventory to be used both in counseling and in evaluating the outcomes after counseling.

Source of Data and Method of Study:

Data were gathered from 40 high school and college counselees at the UCLA Extension Counseling Center concerning the nature of their vocational, educational, and personal problems. These statements were categorized into problem areas and subsequently developed into the universe of items for the Vocational-Educational Inventory. Subjects for the study included 46 UCLA counselees, 13 Aggeler B10 students who were enrolled in a vocational guidance unit class, and 76 Morningside High School students who were not receiving counseling or vocational guidance. The Vocational-Educational Inventory was administered to the UCLA counselees before and after counseling, to the Aggeler students before and after a vocational guidance unit, and to Morningside students three times for test-retest reliability.

Findings and Conclusions:

Results indicate that: (1) content validity was established by four UCLA Extension Counseling Center psychologists and four additional counselors, all of whom agreed upon relevance of the items for students' and counselors' specific goals in counseling There was also a general consensus among the Aggeler and Morningside students that the items in the Inventory were relevant to their vocational, educational, and persona problems. (2) the Inventory does discriminate among the three populations for concurrent validity. Data indicate a trend that UCLA is lowest on all but the Educational subtest where Aggeler scores lowest, and that Morningside is the highest on all of the subtests. The Inventory clearly delineates between UCLA counselors and Morningside students who are not receiving counseling or vocational guidance. (3) The Inventory has a moderately high reliability ranging from .73 to .90 for the ten day interval and .60 to .77 on the three month test-retest coefficients. (4) the UCLA counselees showed a significant difference in change in self report as measured by the Inventory on all five of the subtests.

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TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Mertz, Otto,
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE SUPERVISED FARMING PROGRAM IN CALIFORNIA.

Degree granted Ed.D. Date 1954 No. of pages in report 280

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The major purpose of this study was (1) trace the historical development of supervised farming programs in California, (2) to compare the extent that the major agriculural enterprises in California have been represented in the supervised farming program, and (3) to discover what influences teachers of vocational agriculture may have in motivating students to conduct either crop of livestock projects.

Source of Data and Method of Study:

A mail survey was conducted to determine the influences of teachers of vocational agriculture on the number of crop and livestock projects. One hundred fifty-seven or 66.8% of all departments of vocational agriculture in California responded. These departments enroll three-fourths of all students taking vocational agriculture in California.

Findings and Conclusions:

Results from the mail survey indicated that teachers of vocational agriculture in California emphasize livestock more than crops when helping and guiding students with their supervised farming programs, and in evaluating results from fairs and shows.

Teachers of vocational agriculture claimed that it is more difficult to promote crop projects because of (1) scarcity of land, (2) lack of student interest in crops, and (3) lack of equipment needed for crop projects. Those teachers recommending that the number of crop projects be increased, suggested the following ways of doing so: (1) school farm laboratories, (2) more parent-and-son partnerships, (3) more class time spent in teaching about important crops in the community. (4) more recognition of students with good crop projects, (5) exhibition of crop enterprises at fairs and shows, and (6) more financial aid for crop projects.

Results from the mail survey further indicated that teachers of vocational agriculture promote those enterprises in supervised farming toward which they have a favorable attitude and previous training. Less importance appeared to be placed on the farming in the community.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Miller, James, Arthur
(Last name) (First name) (Middle name)

Exact Title FUNCTIONAL COMPETENCIES NEEDED BY INDUSTRIAL ARTS INSTRUCTORS TO ADEQUATELY PERFORM IN CONTEMPORARY INDUSTRIAL ARTS LABORATORY/CLASSROOMS.

Degree granted Ed.D. Date 1971 No. of pages in report 197

Granted by University of Northern Colorado Greeley, Colorado
(Name of Institution) (City, State)

Where Available; Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to identify functional competencies needed by instructors who teach in contemporary industrial arts programs and to rank these competencies in order of importance.

Source of Data and Method of Study:

Seventy-five functional competencies were identified and validated by a jury of industrial arts teacher educators and supervisors. This list of competencies was sent to 560 industrial arts teacher educators and supervisors throughout the U.S., Canada, and the District of Columbia. The rank order of the competencies was determined by the mean value of importance for each competency and a correlation was calculated for the two groups represented.

Findings and Conclusions:

1. Close agreement existed between industrial arts supervisors and teacher educators concerning the rank order of importance for the functional competencies identified in this study.

2. The functional competencies identified in this study can be used effectively to aid industrial arts teachers, teacher educators, and supervisors in the identification and selection of important competencies needed to adequately perform in contemporary industrial arts laboratory/classrooms.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Moullette, John, B.
(Last name) (First name) (Middle name)

Exact Title SELECTED LEADERSHIP DIMENSIONS OF MANAGEMENT PERSONNEL IN VOCATIONAL EDUCATION, GENERAL EDUCATION, INDUSTRY, AND THE MILITARY.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by Rutgers University New Brunswick, New Jersey
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The study assessed the bahavior and the leadership dimensions of management personnel in four occupations--vocational education, general education, industry, and the military at three management levels: top, middle, and lower--with regards to communications, human relations, and style and technique as perceived by in-service management personnel.

Source of Data and Method of Study:

A revised Leader Behavior Description Questionnaire (LBDQ) was constructed. This consisted of 45 (15 each) communications, human relations (integration), and style and technique (initiation) items whose tetrachoric correlation coefficients were relatively high between each item and the total dimension score. The survey research technique was extended to a random sample and a selected stratified sample of the population, which consisted of 120 management personnel--40 in each management level.

Findings and Conclusions:

The three levels of management personnel in the four occupations were in agreement in their perceptions that the dimensions of communications, human relations, and style and technique are behavioral characteristics as centering more on the dimensio of communications than on the other two dimensions. Management personnel in industry perceived the behavioral characteristics as centering less on the dimension of human relations.

Studies ought to be initiated to determine the reason for the perceptions of military management personnel with regards to the communications dimension and the reasons for the perceptions of industrial management personnel with regards to the human relations dimension.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Nannay, Robert, William
(Last name) (First name) (Middle name)

Exact Title THE EFFECTIVENESS OF TEACHING A PSYCHOMOTOR TASK VIA FORWARD AND BACKWARD CHAINING.

Degree granted Ed.D. Date 1970 No. of pages in report 155

Granted by University of Maryland College Park, Maryland
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to obtain research data regarding the learning condition of chaining. Since it has been recognized that behavioral chains may be acquired by an individual in either forward or backward manner, a major aim of this study was to discover the relative effectiveness of these two procedures.

Source of Data and Method of Study:

The treatment and control groups were randomly selected from a population of female college students at the University of Maryland. The treatment groups received slide-tape instruction utilizing forward and backward chaining.

Findings and Conclusions:

There was no significant difference in the backward chaining group and the forward chaining group on the psychomotor task used in this study.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Novosad (Last name), John (First name), Peter (Middle name)

Exact Title IMPLICATIONS OF COMPUTER TECHNOLOGY FOR INDUSTRIAL EDUCATION

Degree granted Ed.D. Date 1971 No. of pages in report 298

Granted by Wayne State University (Name of Institution) Detroit, Michigan (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To examine selected public schools, at the elementary, secondary, and higher education levels, for the purpose of identifying existing practices utilizing computer technology and/or related peripheral equipment. The study concentrated on the four areas concerned with instruction, administration, research, and teaching about the computer and its use.

Source of Data and Method of Study:

Practices with potential for the study were identified as a result of reviewing relevant literature and correspondence with selected individuals and institutions. Schools and colleges were surveyed to obtain information by data-gathering instrument. Population surveyed was identified as a result of writing to the fifty State Directors of Vocational Education and two hundred and thirty-five Industrial Teacher Education Institutions.

Findings and Conclusions:

A. The computer has developed into a most sophisticated tool as evidenced by the wide range of capabilities and applications described in this study. These capabilities and applications are steadily increasing as advances are made in hardware and software. They are enhanced also as a result of research performed in such areas as systems analysis, cybernetics, and human engineering.
B. Computer technology has become a necessary element in the performance of many tasks in business, industry, the military, and government. The need for applying computer technology and teaching about it in education is apparent. Educators must acknowledge the changing realities of the world in which they function and for which they prepare individuals to participate. This is especially true for industrial education because of the expanding technical nature of the world of word. A sizeable effort is being made by educators to determine the specific role of the automatic machine in the performance of tasks concerned with instruction, administration, and research.
C. The computer, which makes the sophisticated teaching machine possible, is performing increasingly important tasks in instruction.
D. The computers inherent capability for processing data serve to make it an important tool in the performance of research and administrative functions.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Oakley (Last name), Gary (First name), Douglas (Middle name)

Exact Title THE FEASIBILITY OF COMPRESSED SPEECH FOR PROVOCATIONAL EDUCATION.

Degree granted Ph. D. Date 1970 No. of pages in report 75

Granted by Southern Illinois University (Name of Institution) Carbondale, Illinois (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine certain effects that compressed speech as an educational medium has on the area of career development.

Source of Data and Method of Study:

Six treatment groups in each of three high schools in Kentucky (N=398) were presented a lecture by means of tape recording. The control group heard the lecture in its uncompressed form. The second group heard the same lecture compressed 30 percent. The third and fourth groups heard the lecture at 50 and 65 percent, respectively. Group 5 heard the lecture twice: once at 50 percent and again at 65 percent. Group 6 heard the lecture compressed 65 per cent and read a printed script of material at the same time. All groups were involved in a pretest, treatment, post-test sequence.

Findings and Conclusions:

1. The learning produced by conventionally recorded speech produced significantly greater learning gains than speech (at the word rate utilized) compressed 30 per cent, 50 per cent, and 65 per cent.
2. The amount of learning produced by a lecture presented by conventional recording was significantly greater than that produced by that same lecture compressed 50 per cent and repeated at 65 per cent.
3. The amount of learning produced by a lecture presented by conventional recording was significantly greater than that produced by that same lecture compressed 65 per cent and accompanied by a written script.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION.
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Oaks, (Last name), Merrill (First name), Matthew (Middle name)

Exact Title AN EVALUATION OF THE EFFECTIVENESS OF A DEVELOPMENTAL SEQUENCE FOR TEACHING AN INDUSTRIAL EDUCATION PSYCHOMOTOR TASK TO SEVERELY MENTALLY RETARDED STUDENTS.

Degree granted Ed.D. Date 1970 No. of pages in report 187

Granted by University of Maryland (Name of Institution) College Park, Maryland (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to provide research evidence concerning the effectiveness of a sequential program of instruction in the development and performance of industrial education skills by severely mentally retarded students.

Source of Data and Method of Study:

This study utilized a quasi-experimental design which involved the treatment of a single experimental group. A pretest, posttest, and retention test were used to evaluate the learning task. Data were then analyzed on the basis of the scores recorded for each test.

Findings and Conclusions:

The findings of this study revealed that the sequential method utilized was effective for teaching a scribing-sawing psychomotor task to severely retarded young boys. The method was also responsible for significant retention of learned material.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Oliver (Last name), Wilmot (First name), F. (Middle name)

Exact Title THE RELATIVE EFFECTIVENESS OF INFORMATIONAL FEEDBACK ABOUT SUPERVISORY AND STUDENT REACTIONS WITH BEGINNING AND EXPERIENCED VOCATIONAL TEACHERS.

Degree granted Ed.D. Date 1967 No. of pages in report 71

Granted by Rutgers University (Name of Institution) New Brunswick, New Jersey (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to determine the realtive effectiveness of informational feedback from supervisors, students, and students and supervisors combined as a means of improving the teacher image of beginning and experienced teachers.

Source of Data and Method of Study:

Instructors were categorized into three groups based upon years of teaching experience and then randomly assigned to one of four feedback conditions: (1) supervisor only, (2) students only, (3) supervisor and students combined, and (4) a control group which received no feedback. Two hundred eighty-six instructors from vocational departments were utilized in the experimental study. The pretest was administered during the fall semester of 1965 and the posttest was administered 12 weeks later. Reactions about teacher behavior were gathered from supervisors and also students enrolled in grades 10, 11, and 12. The data gathered were used in a 2 x 2 x 3 factorial experiemnt. The statistical method of unweighted means was used to analyze data because of disproportionality in cell strength.

Findings and Conclusions:

1. There were significant differences in teacher effectiveness as observed by students between those groups receiving feedback from students, either alone or in combination with feedback from supervisors, and those who received no feedback.
2. The various sources of informational feedback were not equally effective. Student feedback improved teacher effectiveness while supervisor feedback did not. The effect of the combined feedback did not exceed that of student feedback alone.
3. The most experienced teachers (11 years and over) were least receptive to feedback as compared to the intermediate experienced group of teachers (4-10 years) and those teachers with limited teaching experience (1-3 years.). The effect of feedback on the intermediate and less experienced teachers was approximately equal but greater at the .05 level of significance than the most experienced group.

Based on these findings, student feedback during the first 10 years of teaching can be used as an effective method of improving teacher effectiveness as seen by students

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author O'Neill, John, Nicholas
(Last name) (First name) (Middle name)

Exact Title THE FEASIBILITY OF A SYSTEM FOR THE EXCHANGE OF INFORMATION ABOUT LOCALLY PRODUCED INSTRUCTIONAL MATERIALS BETWEEN INDUSTRIAL ARTS PROGRAMS IN HIGHER EDUCATION.

Degree granted Ed.D. Date 1971 No. of pages in report 179

Granted by University of Northern Colorado Greeley, Colorado 80631
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The central purpose of this study was to determine the feasibility of an information system designed to facilitate the exchange of information regarding locally produced instructional materials among institutions of higher education offering majors in industrial arts or industrial technology.

Source of Data and Method of Study:

Following a pilot study, a model was developed which represented a hypothetical information exchange system. The hypothetical model was used to identify problems and raise questions that only potential participants in such a system could answer. During model development five criteria for feasibility were identified as being of paramount importance to the study. A thirty-five item survey instrument was developed to answer questions regarding the feasibility of such an information exchange system. Replies were received from 128 industrial arts administrators for a 70 per cent return

Findings and Conclusions:

The study indicated that an information exchange system was feasible based on the satisfaction of all primary criteria. In the area of existance of materials it was found that ninety-nine schools were either producing materials for individualized instruction or planning to do so in the next two years. Information received via the instrument indicated that a little more than two-thirds of industrial arts administrators in a position to make their locally produced instructional materials available were willing to do so. In terms of need and demand, over 90 per cent of the respondents indicated that they would make use of materials listed by a system of this type if materials were of sufficient quality, priced in reasonable comparison with commercially prepared materials, and adequate to their needs. In terms of national organization participation, the American Industrial Arts Association and the Publications Committee of the American Vocational Association have each indicated that publishing this type of information comes within the realm of their responsibility. However, neither organization made a firm commitment regarding periodic publication of gathered material. The study also revealed that most reporting school were capable of producing or reproducing the more popular types of media. Based on the findings of this study, eighteen recommendations were made regarding the development of a system to facilitate the exchange of information regarding locally produced instructional materials among industrial arts programs in higher education.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Pellegrin (Last name), Joseph (First name), Jr. (Middle name)

Exact Title PERCEIVED PRIORITIES AND FUNCTIONS FOR OCCUPATIONAL TRAINING IN OHIO AND WISCONSIN

Degree granted Ph.D. Date 1971 No. of pages in report 169

Granted by University of Wisconsin (Name of Institution) Madison, Wisconsin (City, State)

Where Available; Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To obtain rankings of priorities and functions for occupational training as perceived by school board members, superintendents, and experts charged with the responsibility for providing occupational training programs in Ohio and in Wisconsin public schools districts.
2. To classify the preferred priorities and functions for occupational training into identifiable patterns;
3. To test the possibility of relationships between the rankings of priorities and funcitions to quality of the occupational training programs provided.

Source of Data and Method of Study:

The population of the study consisted of school board members and superintendents representing all high school district in Ohio and in Wisconsin, and thirteen experts representing both state departments of education. A sample of forty-eight school districts was chosen from each state. Criteria used to determine high and low quality occupational training programs were: development of long-range planning, services of an occupational training coordinator, career development processes, exploratory and sequential course offerings, specialized course offerings, articulation with post-high school courses, and special services to the student.

Findings and Conclusions:

Hypothesis 1, which stated that there is no agreement between groups of school board members and superintendents concerning priorities and functions for occupational training in Ohio and Wisconsin was rejected. Hypothesis 2, which stated that there is not agreement within groups of school board members' and superintendents' perceptions in Ohio and in Wisconsin, also was rejected. Hypothesis 3, which stated that there is no relationship between extent of agreement of school board members' and superintendents' perceptions and program quality was accepted for school board members but was rejected for school superintendents. Hypothesis 4, which stated that there is no relationship of nature of agreement between school board members' and superintendents' perceptions to program quality, was accepted. There was found high agreement among groups of school board members and superintendents representing enrollment classification groups and program quality groups. It was found that there was no relationship between perceptions of priorities and functions for occupational training and several ancillary variables.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Phares (Last name), Gail (First name), Jay (Middle name)

Exact Title SECONDARY SCHOOL INDUSTRIAL ARTS COURSES IN DRAFTING, ELECTRICITY-ELECTRONICS, AND GENERAL METAL AS THEY RELATE TO INDUSTRIAL PRACTICES.

Degree granted Ed.D. Date 1962 No. of pages in report 475

Granted by University of Southern California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To examine the industrial arts courses in drafting, electricity-electronics, and general metal as suggested for the secondary schools of California for their conformity to contemporary developments in industry.

Source of Data and Method of Study:

The judgments of five groups of respondents were obtained by means of questionnaires. Respondent groups were (1) former industrial arts teachers now working in industry, (2) part-time trade and technical teachers, (3) specialists from within industry, (4) industrial arts teacher-educators and curriculum specialists, and (5) practicing industrial arts teachers.

Findings and Conclusions:

1. The three industrial arts courses examined in this study do contain a substantial central core of curricular items that are currently essential in industry. Two thirds of more of the items in each course were judged to be essential or important in industry.
2. From 7 to 15 percent of items were judged to be obsolete or nonessential practices. These items reflect (a) the rapid scientific and technological changes in industry and (b) the failure to revise and update industrial arts courses on a periodic basis.
3. Because industrial innovations are occurring so rapidly, there is not the same awareness of contemporary developments in industry on the part of teachers, teacher-educators, and curriculum specialists that there is among industry-oriented specialists.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Phillips (Last name), Loren (First name), Douglas (Middle name)

Exact Title AGRICULTURAL CURRICULUM IN THE JUNIOR COLLEGES OF THE UNITED STATES.

Degree granted Ed.D. Date 1954 No. of pages in report 594

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This normative-survey study of status, current practices, and attitudes was concerned with the junior college agricultural curriculums of the United States during 1950-51, and some of the related factors affecting the degree of success achieved in their implementation .

Source of Data and Method of Study:

On the basis of 365 questionnaire responsed from agricultural personnel in 96 junior colleges, supplemented by numerous personal interviews and an extensive review of the literature, certain trends with respects to possible increase or decrease in the use of individual practices were indicated.

Findings and Conclusions:

1. Ninety-eight per cent of the respondents believed agricultural curriculums should train students for placement opportunities outside as well as inside the junior college district, and 96 per cent of the junior colleges so provided.
2. The community occupational survey was believed to be, and in practice actually was, the most valuable aid to building and revising the curriculum.
3. Facilities rated exceptionally high were: specially planned and equipped farm mechanics shops, specially planned and equipped agricultural classroom and laboratory buildings, and audio-visual rooms. Trends seem to have been operating toward an increase in such facilities.
4. Preferred teaching methods were: field trips to operating farms, reading assignments, and class discussion.
5. Laboratory techniques, in descending order of importance as to both opinion and practice, included the demonstration field trip, demonstrations, practicing skills in the laboratory or on the school or community farm, audio-visual aids, and class discussions.
6. Only 61 per cent of the junior colleges articulated with both high schools and four year colleges, the greater emphasis being placed upon articulation with the latter.
7. The national ratio of teachers to classrooms, per agricultural department, was 1:.905; of teachers to laboratories, 1:.719.
8. While administrators believed 9.9 hours per week were sufficient for department heads to discharge their administrative duties, the department heads themselves estimated a required 12.4 hours.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Pucel (Last name), David (First name), Joseph (Middle name)

Exact Title THE RELATIVE EFFECTIVENESS OF THE TRADITIONAL AND TWO MODIFIED METHODS OF ORGANIZING INFORMATION SHEETS.

Degree granted Ph.D. Date 1966 No. of pages in report 138

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study investigated the relative effectiveness of the typical method of organizing information sheets used by vocational educators with two organizations based upon "The Subject Assumption Theory of Meaningful Verbal Learning and Retention" as propos by Ausubel.

Source of Data and Method of Study:

Based on a review of Ausubel's writing, a small purposive sample of educational psychologists and industrial educators agreed than an organizer should (a) relate the material to be attained to what the student has already experienced, and thereby giv him where the new materials fit into his previous experience, and (b) supply an internal organizational structure to a high level of generality for the material the student is about to read.

Findings and Conclusions:

There was no significant differences between the three treatments or interactions between the treatments and ability, and ability and difficulty using either moderately difficult or difficult material in terms of amount of initial learning, retention or transfer. In each analysis (initial learning, retention, and transfer) significant differences were found between the ability groups.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Randleman (Last name), Robert (First name), Ronald (Middle name)

Exact Title TECHNICAL VOCABULARY AND ITS RELATIONSHIPS TO SELECTED STUDENT CHARACTERISTICS AND INDUSTRIAL EDUCATION PROGRAMS.

Degree granted Ph.D. Date 1961 No. of pages in report 235

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To identify relationships between the sizes of students'technical vocabularies and scholastic ability, scholastic achievement, amount and nature of industrial arts and science instruction, and grade level.

Source of Data and Method of Study:

A 20 per cent stratified random sample by class was drawn from the total male industrial arts population in grades nine through twelve enrolled in Minneapolis Public Schools in the 1959-1960 school year. A comparison sample of Vocational High School students was also drawn. A 180-item, nine-foil, multiple choice technical vocabulary test was constructed specifically for the study. Entitled the Technical Terms Inventory, it contained nine 20 item subtests covering auto mechanics, drafting, electricity, foundry, graphic arts, machine shop, sheet metal, welding, and woodworking.

Findings and Conclusions:

1. A positive relationship existed between the size of industrial arts and vocational students' technical vocabularies and their attainment on measures of intelligence and scholastic ability.
2. Factors other than general intellectual ability apparently contributed to technical vocabulary growth.
3. Relationships between technical vocabulary size and general intellectual ability appeared to be compatible with findings from research on general vocabulary.
4. The amount of industrial arts instruction taken by the students appeared to have no significant relationship to technical vocabulary size.
5. There appeared to be a positive association between the size of industrial arts students' technical vocabularies and grade level.
6. A direct and positive relationship existed between the size of vocational high school students' technical vocabularies and grade level.
7. Vocational school mechanical trades instruction or differences in the basic population not identified in this study contributed to the development of technical vocabulary to a significantly greater degree than did industrial arts instructio
8. Eleventh and twelfth grade science courses held a positive relationship to industrial arts students' technical vocabularies; and a significant relationship appeared between science instruction and vocabulary size as shown on the electricity subtest.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Reams (Last name), Jake (First name), W. (Middle name)

Exact Title THE RELATIONSHIP OF SELECTED FACTORS TO THE SCHOLARSHIP OF INDUSTRIAL ARTS TEACHER EDUCATION STUDENTS AT BALL STATE TEACHERS COLLEGE.

Degree granted Ed.D. Date 1963 No. of pages in report 162

Granted by Indiana University (Name of Institution) Bloomington, Indiana (City, State)

Where Available: Microfilm (X) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To study the relationship of selected student scholastic and environment characteristics to college grade point ratio for the purposes of: (1) gaining a better understanding of the student population, (2) providing information helpful for recruitment, (3) providing information for guidance and counseling, and (4) providing information of possible value in program improvement.

Source of Data and Method of Study:

Data were assembled from student records and personal interviews for the 75 cases representing a 100 per cent sampling of the 1962 graduates and 1963 seniors who were industrial arts teacher education majors.

Findings and Conclusions:

1. No relationship exists between the amount or quality of high school industrial art experiences and scholastic success in college.
2. The number of grade points earned in high school mathematics and physical science subjects showed a low but significant relationship to scholastic success in colleg
3. Of all variables tested, the SCAT verbal score gives the highest correlation (.58) with scholastic success.
4. SCAT quantitative scores were not significantly related to college success.
5. Approximately one-third of the study group came from the lower 50 per cent of thei respective high school classes.
6. Approximately one-third of the study group ranked below the 34th percentile on the SCAT verbal test.
7. No combination of the academic variables substantially improved the predictive value of the SCAT score in relationship to the criterion of average grade point ratio.
8. The father's occupation was not related to scholastic success for the study group.
9. Approximately 43 percent of the fathers had an eighth grade education or less.
10. The amount of trade or industrial work experience is not related to scholastic success.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Richards, Kenvyn, Barrett
(Last name) (First name) (Middle name)

Exact Title A COMPARISON OF THE EFFECTS OF VERBAL AND VERBAL-MANIPULATIVE FORMS OF PROGRAMMED INSTRUCTION IN TEACHING MEASUREMENT SKILLS TO SIXTH GRADE PUPILS.

Degree granted Ed.D. Date 1970 No. of pages in report 355

Granted by University of Maryland College Park, Maryland
Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to investigate the efficacy of including manipulative experiences in a program of instruction.

Source of Data and Method of Study:

Thirty-six girls and thirty-six boys were drawn at random from the sixth grade populations in each of two schools. Three groups were formed in each school. One experimental group used the verbal program of instruction. The other experimental group used the verbal-manipulative program of instruction. The control group was not treated. All three groups took a posttest and two weeks later, a retention test.

Findings and Conclusions:

There were no significant differences between the experimental groups on the learning task. There was a significant difference between experimental groups in the amount of time needed to complete the treatment. Pupils using the verbal program of instruction required less time to complete the treatment than did the pupils using the verbal-manipulation program of instruction.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Ridley, Jr. (Last name), William (First name), H. (Middle name)

Exact Title THE INFLUENCE OF AREA VOCATIONAL SKILL-CENTERS ON SECONDARY SCHOOL CURRICULUMS AND PROGRAMS.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by State University of New York at Buffalo, (Name of institution) Buffalo, New York (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To investigate the extent to which the establishment of an area vocational skill-center influences curriculum changes and program innovations in home schools.

Source of Data and Method of Study:

Geographically the study was limited to New York State and was conducted in all public secondary schools outside the City of New York that offer basic education in conjunction with an area vocational skill-center. The investigation was conducted as a descriptive field survey employing ex post facto research design. Data were collected by means of an instrument developed by the investigator from the principals, guidance personnel, and department heads in the English, mathematics, science, and social studies disciplines in sending schools of the various area vocational districts The population was a purposeful selected sample within New York State. All of the members in the population were certified first as teachers and subsequently in one or more of the following categories: (1) administration, (2) counseling, and (3) supervision.

Findings and Conclusions:

1. Area vocational education at the secondary level in New York State is generally favored as being a worthwhile program.
2. Basic education courses for students enrolled in area vocational skill-centers are usually below average in terms of meeting the needs of these students.
3. As the home school must refrain from special emphasis on the curriculum for the college bound, so must the vocational annex avoid too exclusive emphasis on the building of a specific set of skills.
4. There is a general consensus of opinion among respondents that it is both desirable and beneficial for educators and industry leaders to exercise cooperative effort in the development and operation of the vocational education program offered in local area skill-centers.
5. There exists a direct relationship between the frequency of involvement with an area skill-center problem or issue and the effectiveness in solving the problem or resolving the issue.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Ross, B., John
(Last name) (First name) (Middle name)

Exact Title MUSEUM RESOURCES AND THEIR UTILIZATION IN INDUSTRIAL ARTS EDUCATION

Degree granted Ed.D. Date 1971 No. of pages in report 359

Granted by New York University New York, New York
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to develop a plan for utilizing museums as resources for industrial arts education.

Source of Data and Method of Study:

A questionnaire survey of educator groups was sent to industrial arts teachers, department chairmen, and teacher educators. Sixty-two percent of the sample responded to the survey. Data retrieved from these groups included information about their present utilization of museums, the relevancy of museum resources to industrial arts instruction, and materials appropriate to a plan for utilization of museum resources. A questionnaire of similar design was mailed to museum professionals to obtain comparative data for the study. Fifty-eight percent returned usable data. Information supplied by this group defined status of use, documented existing resources, and provided specific information relating to the use of their museums.

Findings and Conclusions:

Museums with appropriate resources for industrial arts were reported in all areas of New York State. Educators, although agreeing with the concept of utilizing museum resources, have not fully utilized area museums. Their lack of museum related training and school policies regarding use of museums were restrictive elements.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Ross (Last name), Herbert (First name), James (Middle name)

Exact Title GUIDELINES FOR SERVING YOUTH WITH SPECIAL NEEDS IN VOCATIONAL EDUCATION PROGRAMS.

Degree granted Ed.D. Date 1970 No. of pages in report 148

Granted by Temple University (Name of Institution) Philadelphia, Pennsylvania (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To construct guidelines for vocational educators to use in the development of programs for the youth with special needs within the schools.

Source of Data and Method of Study:

Sources: DATRIX - ERIC - ARM - Reader's Guide to Periodical Literature - RISE (Research Services to Education) - Encyclopedia of Educational Research-Card Catalog (Temple and University of Pennsylvania Library, etc.)

Method: Survey - Use of survey instrument at selected programs (Urban, suburban-private, etc.)
Use of panel of experts in special education.
Use of panel of experts in vocational education.

Findings and Conclusions:

There is justification for the establishment and expansion of vocational education programs to serve youth with special needs which stem from the fact that both the social and vocational adjustment of these youth would be facilitated by such an arrangement. The present rate of non-employability of these youth is due primarily to the absence of vocational training programs specifically designed for their needs. Being part of the total social structure may well be the most important motivational factor for providing adequatly for these youth. The resources of both social and vocational education should be combined to provide these programs. Programs must be based on the nneeds of these youth for interpersonal experience with all persons who will later become their co-workers and supervisors.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Rowen, Milton, Stanley
(Last name) (First name) (Middle name)

Exact Title THE IDENTIFICATION OF EDUCATIONAL MEDIA RETRIEVAL TECHNICAL STAFF MEMBERS IN RELATION TO POSITION ANALYSIS, DUTIES AND RESPONSIBILITIES.

Degree granted Ed.D. Date 1969 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To identify the educational media retrieval technical staff members in relation to position analysis, duties and responsibilities.

Source of Data and Method of Study:

Background research involved searching out and investigation of all available books, periodical articles, trade papers, and related materials dealing with this new technology. In addition, an extensive schedule of interviews and visitations was undertaken. The latter included interviewing specific resource personnel in industry, as well as school district, state college and university personnel, and Ministers of Education and/or other high government officials in Sweden, Denmark, France and England.

Findings and Conclusions:

On the basis of the findings, fifteen basic positions necessary to technically operate and maintain an Educational Media Retrieval System were identified. A suggested format for position analysis, as well as the duties and responsibilities of these fifteen key positions, was developed and presented.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Ruehl (Last name), Philip (First name), William (Middle name)

Exact Title AN EXPERIMENT IN THE USE OF AN AUTO INSTRUCTIONAL AID IN TEACHING ELECTRICITY.

Degree granted Ph.D. Date 1961 No. of pages in report 210

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To test the effectiveness of auto instructional device as an aid in learning and applying the principles of electricity.

Source of Data and Method of Study:

The experiment took place at Stout State College in Menomonie, Wisconsin, during the 1960-61 school year. Four sections of twenty-four freshman students each participated in the study. Each section was divided into two random groups. Each group was further divided into three subclasses according to mathematical ability.

Findings and Conclusions:

The automatic comparator was an effective aid in learning the application of electrical principles. Educational implications and suggestions for further research are included in the study.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author	Russell,	Gene,	Haley
	(Last name)	(First name)	(Middle name)

Exact Title A COMPARISON OF OBJECTIVES OF INNOVATIVE INDUSTRIAL ARTS PROGRAMS BY INDUSTRIAL ARTS EDUCATORS AND HIGH SCHOOL PRINCIPALS IN THE SEVEN MOUNTAIN STATES.

Degree granted Ed.D. Date 1970 No. of pages in report 166

Granted by	Utah State University	Logan, Utah
	(Name of Institution)	(City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This study was undertaken to identify and compare the objectives of new and innovative industrial arts programs as appraised by industrial arts educators and high school principals.

Source of Data and Method of Study:

The study was conducted using industrial arts educators from teacher-education institutions and a random proportionate sample of high school principals located in the states of Arizona, Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming. A Q-sort instrument was sent to 133 industrial arts educators and 147 high school principals. The respondents were asked to rank sets of objectives from 1 traditional and 20 innovative programs. Cochran (1970) was employed as the source of the innovative programs.

Findings and Conclusions:

Inspecting the items ranked by the participants, one could conclude that the two groups differed significantly on the ranking of several sets of objectives. Analysis of these divergently ranked objectives implies that high school principals are more supportive of a curriculum that provides a broad occupational exposure of the world of work while developing simple work habits and social attitudes. Conversely, industrial arts educators tended to rank high those objectives dealing mainly with technical knowledge, concepts of American industry, and experiences which incorporate solving problems related to industry. Comparison of the order of approaches to industrial education by industrial arts educators and high school principals produced a correlation of .00. This numerical evidence suggests that the two groups differ in their views toward the (1) goals and purposes, (2) content, and (3) anticipated directions of the industrial arts curriculum. In the total rank order of approaches, the two innovative programs with the highest mean scores were from the integrative approach to industrial education. These programs were Introduction to Vocations and The Partnership Vocational Educational Project. The numerous answer cards that had to be eliminated from the study indicate that Q-sort methodology is not a widely understood research technique.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Russell (Last name), Samuel (First name), E. (Middle name)

Exact Title Occupational Trends and the Curricular implications of Selected Industries in Florida

Degree Granted Ed. D. Date 1966 No. of pages in report 253

Granted by University of Pennsylvania (Name of Institution) Philadelphia, Pennsylvania (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine occupational trends and projections of manufacturing industries, and industrial education curricular patterns and trends in Florida high schools, for planning industrial education curricular projections in the State.

Source Of Data and Method of Study:

Manufacturing industries were selected with the stipulation that all of them require utilization of skills and knowledge available in public high school industrial education classes. State publications listed 239 related schools. Data not available in State records was secured via questionnaire from the schools. Data concerning employment trends was collected on national level, state level, and Standard Metropolitan Statistical Area level from Government documents. Data concerning curricular trends was collected from State Documents and from the schools. Analysis included comparisons of general population trends, social-economic trends in the State, Nation, and each population center in the State,1940-1960. Statistical treatment involved Criterion and Predictor variables and regression and correlation with projections.

Findings and Conclusions:

More important findings of 72 were:

1. Employment in manufacturing growing at a faster rate in the State than in the Nation.
2 Non-durable goods industries primary employers, however, durable goods industries led in rate of increase in employment.
3. Greatest manufacturing industry growth in Standard Metropolitan Statistical Areas, thus the industrial growth pattern followed the population growth pattern.
4. Lumber, wood, tailoring, and stenography occupations were declining steadily in employment.
5. Employment of women was increasing rapidly in non-durable goods in industries, drafting, and the electrical industry.
6. Trend line projections showed that manufacturing industry growth could be expected to continue current growth rate through 1970.
7. Enrollment in industrial educaiton programs since 1950 was slow but steady.
8. More provisions should be made for inclusion of girls in Industrial Education.
9. Content of courses should include more technical knowledge.
10. A more balanced industrial arts program should be planned and implemented.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Rutherford (Last name), William (First name), Edgar (Middle name)

Exact Title PERSONNEL RELATIONS: A STUDY OF THE SELECTION, PLACEMENT, AND GUIDANCE OF BEGINNING INDUSTRIAL ARTS TEACHERS IN CALIFORNIA SECONDARY SCHOOLS.

Degree granted Ed.D. Date 1962 No. of pages in report 225

Granted by Bradley University (Name of Institution) Peoria, Illinois (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To survey and report administrators and supervisory practices relative to beginning industrial arts teacher selection, placement, and guidance in secondary school teacher positions in California, and to develop a concept of democratic personnel administration and supervision as a basis for evaluating reported practices.

Source of Data and Method of Study:

Questionnaire responses by administrators and beginning industrial arts teachers reveals differences in conceptions of current personnel practices and the extent to which practices are democratic. Evaluation of these differences and the resulting suggestions are made in relation to the concept of democratic personnel leadership.

Findings and Conclusions:

Responsiblities of teachers are discussed in relation to their preparation for teaching, position selection, position orientation, in-service education, and improving the instructional environment. An extreme lack of mutual understanding exists between administrators and teachers. There is need of better communication between them. Both groups are responsible for the lack of good communications and mutual understanding. Wider understanding and practice of the democratic concept of mutual cooperation by both groups will tend to break down communications barriers and will lead to mutual recognition of problems. Group participation in planning and in seeking solutions to problems will tend to improve the industrial arts instructional environment and the total school program.

School principals are largely responsible for supervision of industrial arts teachers in California secondary schools, resulting in "generalized" supervision and inadequate leadership and real guidance of this teacher group.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS, TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Ryan (Last name), Chester (First name), Maupin (Middle name)

Exact Title AN ANALYSIS OF THE PREPARATION, SELECTION AND TRAINING OF TEACHERS IN THE TRADE AND INDUSTRIAL EDUCATION PROGRAM OF NORTH CAROLINA WITH IMPLICATIONS FOR THE FUTURE.

Degree granted Ed.D. Date 1963 No. of pages in report 183

Granted by University of North Carolina (Name of Institution) Chapel Hill, North Carolina (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine the teacher training needs of teachers in the North Carolina trade and industrial education program; to evaluate the trade and industrial teacher training program in North Carolina; and to make proposals for a teacher training program for North Carolina's trade and industrial education teachers.

Source of Data and Method of Study:

A questionnaire was sent to each of the trade and industrial education teachers employed in North Carolina during the 1960-61 school year. This questionnaire gave teachers the opportunity to evaluate their teacher training program by first asking them to indicate the problems they experienced in their early years of teaching and then asking them to indicate the amount of help they received from their teacher training program in solving these problems.

Findings and Conclusions:

Problems experienced by shop teachers, coordinators of diversified occupations and practical nursing instructors were compared, but no specific pattern of problems peculiar to any one group was revealed. The results of this study do not support the establishment of a separate teacher training program for any one group of trade and industrial education teachers but they do indicate that certain areas of the teacher training program may require varying amounts of emphasis to meet adequately the needs of each group of teachers.

This study also revealed that, because of varying background, education, and work exeprience, individual teachers may need individual help in solving the problems they have as beginning teachers.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INSUTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Sada, Pablo, Maria
(Last name) (First name) (Middle name)

Exact Title GUIDELINES FOR IMPLEMENTATION OF INDUSTRIAL PROGRAMS FOR PROPOSED COMMUNITY COLLEGES IN VENEZUELA.

Degree granted Ed. D. Date 1971 No. of pages in report 252

Granted by Arizona State University Tempe, Arizona
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To Consider:
1. The type of organization best able to apply the concept and philosophy of the community colleges in Venezuela, and in particular, their technical-industrial programs,
2. The articulation of such programs with the different levels of the Venezuelan educational system and the possible economic solutions in establishing these institutions.

Source of Data and Method of Study:

Review of selected literature. An instrument was developed to serve as a guide for interviews with community college deans and department chairmen. The community colleges selected for the study were all of the community colleges of San Diego County and the State of Arizona.

Findings and Conclusions:

The deans or persons responsible for vocational-technical programs should have equal authority with the dean of instruction or other deans of the college directly responsible only to the president of the college. The nature of the industrial education programs in the new institutions have to be of at least three types: (1) technical education programs; (2) certificate programs; and (3) continuing educational programs. Industrial programs should be organized by each individual college according to national guidelines. Short-term vocational-technical education programs will make citizens more adaptable to the needs of the times. Programs between secondary and higher education will give the students orientation for future studies. The industrial programs must take into consideration both preceding and succeeding levels in order that efficient articulation can be accomplished. Articulation committees should be created. The Venezuelan government and INCE should finance the industrial programs in the new institutions. The economy, society, and spirit of the nation should be reflected in all offering of the new institutions.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Schill (Last name), William (First name), John (Middle name)

Exact Title CAREER PATTERNS OF TRADE AND INDUSTRIAL EDUCATORS.

Degree granted Ed.D. Date 1961 No. of pages in report 174

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To analyze selected social and personal characteristics of the industrial careers of the craftsmen who have been granted trade and industrial teaching credentials, completed the required teacher training course, and have taught at least three years.

Source of Data and Method of Study:

The study presented has two major parts. The first part consists of the investigation of the industrial and educational backgrounds of 1154 men, from nine occupational areas, who entered Trade and Industrial Education between 1917 and 1959. The second part is the follow-up of 201 of the original group to investigate their teaching careers and educational activity while employed as educators. The second part also included testing the relationships between the data collected in part one and part two.

Findings and Conclusions:

The educational orientation patterns prior to entry were related to teaching career patterns (this had not been presented as a hypothesis and is considered to be an unanticipated, but important finding). Length of time in the trade and the number of times the individual has left the trade for other employment were used to establis trade orientation patterns. The patterns thus established were related to both industrial career patterns and educational orientation patterns prior to entry into Trade and Industrial Education. All three patterns developed from antecedent data were related to one another and industrial career patterns and educational orientation patterns were both related to occupational area. This seems to indicate that the characteristics of the occupational area have an impact upon the men employed in it.

The men in the follow-up had been designated as entering from either a manual or a non-manual position dependent upon the position held immediately prior to entering Trade and Industrial Education. There was no demonstrated relationship between the level of employment at entry and the subsequent teaching career patterns. This may be explained by the differing means to upward mobility in the trades as compared wit education. In educational employment, upward moves are tied closely to educational attainment, whereas in the trade the licenses required to obtain non-manual position (if any required) are not based upon educational attainment.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Schmidt (Last name), Howard (First name), Raymond (Middle name)

Exact Title PRESENT STATUS OF EXPERIMENTAL AIRCRAFT CONSTRUCTION IN THE HIGH SCHOOL WITH IMPLICATIONS FOR THE INDUSTRIAL ARTS PROGRAM.

Degree granted Ed.D. Date 1971 No. of pages in report 145

Granted by University of Northern Colorado (Name of Institution) Greeley, Colorado (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The primary purpose of this study was to collect data to provide information relating to the present status of high school programs in which experimental aircraft construction has taken place. The study covered students, personnel, organization and administration, curriculum, aircraft and recommendations by teachers.

Source of Data and Method of Study:

A card and two questionnaires were developed and utilized to obtain the data necessary to answer questions posed in the study. The card was used to identify experimental aircraft construction programs in high schools. A comprehensive questionnaire was sent to teachers who had conducted experimental aircraft construction classes in high schools. A second questionnaire was provided for students in aircraft construction classes.

Findings and Conclusions:

1. Thirteen programs were identified in which experimental aircraft construction had taken place during the ten-year period from 1961-1971.
2. Hobby or interest in aviation was rated as the most important single factor contributing to a teacher's ability to conduct an experimental aircraft construction class in high school.
3. Ten out of the thirteen programs were included in the industrial arts department.
4. General education and developing problem solving ability were the course objectives rated number one by the largest number of teachers.
5. In the schools surveyed, seventeen projects were under construction or had been completed in the ten-year period from 1961-1971.

From the findings of the study it was concluded that the number of aircraft construction classes in high schools has been increasing rapidly during the past ten-year period. A strong interest in aviation is an important factor in the selection of a teacher for an experimental aircraft construction class, and the industrial arts department is the logical place for an experimental aircraft construction class in the high school. It was further concluded that one of the most important purposes of a high school experimental aircraft construction class is its contribution to the general education of the student.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Schmitt, Victor, A.
(Last name) (First name) (Middle name)

Exact Title Employees Education In the Nation's Basic Industries.

Degree granted Ph.D. Date 1953 No. of pages in report 309

Granted by Cornell University Ithaca, New York
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

A study of patterns of organization and procedures characterizing plant education programs with special reference to non-vocational aspects.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Schramm, Dwayne, Gene
(Last name) (First name) (Middle name)

Exact Title A STUDY OF THE OLDER WOMAN WORKER WHO HAS ATTEMPTED TO ENTER OR RE-ENTER THE WHITE COLLAR LABOR FORCE THROUGH THE ASSISTANCE OF COMMUNITY TRAINING PROGRAMS IN CLERICAL OCCUPATIONS.

Degree granted Ph.D. Date 1969 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To Investigate 6 clerical training programs in which women 35 years of age and over participated in Fresno, California, to determine if the programs assisted these women in making an entry or re-entry into the white collar labor force. A second purpose of this study was to develop a profile of the older woman who participated in the training programs so that the results would provide direct, descriptive information for those who were engaged in the education, job placement, and employment of the older woman.

Source of Data and Method of Study:

Data were gathered on the training programs by making classroom visitations, conducting interviews with teachers and administrators, and analyzing literature pertaining to course descriptions. Personal interviews with 58 of the 91 older women enrolled in the programs provided additional data.

Findings and Conclusions:

The findings indicated the older woman in the clerical training programs in Fresno, California, was 44 years of age; married; the mother of 2 or 3 children whose median age was 17; and a high school graduate. The older woman had not held a clerical job during her lifetime but had worked steadily at some kind of employment for at least one year. Out of the 58 women interviewed, only 27.6 percent obtained clerical jobs during or after their training; however, the training did make contributions toward eventual employability for many of the women.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Schreiber, Ernest,
(Last name) (First name) (Middle name)

Exact Title A PROGRAM TO MEET THE VOCATIONAL NEEDS OF PUBLIC SECONDARY SCHOOL YOUTH IN CAMDEN COUNTY, NEW JERSEY.

Degree granted Ed.D. Date 1967 No. of pages in report 238

Granted by University of Pennsylvania Philadelphia, Pennsylvania
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To meet the vocational needs of public secondary school youth in Camden County.

Source of Data and Method of Study:

Questionnaires, conferences and visitations.
Survey - analysis - recommendation.

Findings and Conclusions:

Study included 41 recommendations that, if followed, will guarantee the availability of salable skill training for all secondary school youth in Camden County not being prepared for higher education.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Seigler, Claude, Irby
(Last name) (First name) (Middle name)

Exact Title KNOWLEDGE AND SKILL REQUIREMENTS OF CONSUMER ELECTRONICS SERVICE TECHNICIANS WITH IMPLICATIONS FOR CURRICULUM DEVELOPMENT.

Degree granted Ph.D. Date 1970 No. of pages in report 131

Granted by Iowa State University Ames, Iowa
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To gather data that would be of assistance in developing a program, for training consumer electronics service technicians and to gather data that could be used for guidance purposes.

Source of Data and Method of Study:

The data were provided by 132 consumer electronics service technicians employed within 38 consumer electronic service firms in Iowa. A mail questionnaire was used to collect the data.

Findings and Conclusions:

The median age of the service technicians was 35.2 years. Eighty-seven percent of the technicians were under 50 years of age. Thrity-one percent of the technicians had three or fewer years of experience. The 12th grade was the highest grade level completed by 67 percent of the technicians. The majority of the technicians had participated in home study programs in electronics. The items that required the highest degree of competency in understanding that should be included in a training program were: "unit of measurement of voltage, current, and resistance"; "color television"; "color code of components"; "electronic stages"; "characteristics and applications of transistors and diodes"; and "DC and AC series, parallel and complex circuit analysis using Ohm's Law." The items that required the highest degree of competency in ability to perform that should be included in a training program were: "adjustment of purity, static convergence, and dynamic convergence in color televisions"; "replacement of defective components"; "follow instructions, policies, and procedures"; "public relations--handling of customers, proper wearing apparel, and proper manners"; and "replacement and adjustment of color cathode ray tube".

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Shaw, Gerald, H.
(Last name) (First name) (Middle name)

Exact Title ESSENTIAL VOCATIONAL GUIDANCE SERVICES AND THEIR IMPLEMENTATION IN THE PUBLIC JUNIOR COLLEGES OF CALIFORNIA

Degree granted Ed.D. Date 1968 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. To identify vocational guidance services and practices considered essential by authorities in the field for provision by the public junior colleges of California.
2. To determine the extent of their current implementation in these institutions.
3. To report the factors judged by certain administrators in the colleges to have been the most positive contributors and the most retarding to the implementation of these essentials .
4. To assemble a set of guidelines for establishing and developing meaningful vocational guidance programs in these institutions.

Source of Data and Method of Study:

An extensive review of the literature, discussions with junior college personnel and leaders in the field of guidance and earlier studies by the writer provided a theoretical and practical background for the investigation. From these sources a listing of items describing specific vocational guidance services and related practices considered essential for these colleges was prepared. A number of these items were incorporated into preliminary outlines of an appraisal instrument and submitted to a select panel of experts for critical review. Revisions were made, pilot study conducted, and further revisions made. Endorsements were obtained from the California Junior College Association and the State Department of Education. The survey was mailed to all public junior colleges in California; ninety-two per cent returned completed questionnaires.

Findings and Conclusions:

1. A critical requirement exists for effective vocational programs in these institutions.
2. A large number of vocational guidance services considered by authorities essentia for these institutions were identified.
3. The statewide survey of essentials showed very few were judged to be implemented at a very high or very low level;
4. Considerable improvements can be made in the implementation of essentials by most colleges and in most areas of service.
5. Significant improvements in these programs in California will require considerable money, trained man-power, leadership and coordinated effort.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Shigetomi, Samson Shigeru
(Last name) (First name) (Middle name)

Exact Title AN ANALYSIS OF THE RELATED INSTRUCTION PROGRAM FOR ELECTRICAL APPRENTICES

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To examine the related instruction program for apprentices at the community college level.

Source of Data and Method of Study:

The objectives of this research were achieved through the use of personal interviews, four sets of questionnaires, and statistical analysis. The four groups receiving the questionnaires were current apprentices, related- information instructors, employers of apprentices, and dropouts from the program.

Findings and Conclusions:

By a ratio of almost twenty to one, the participants indicated their belief that the electrical curriculum, at worst, included most of the theory needed in the trade, and at best, included more theory than is needed by a journeyman. This overwhelming support from the various groups implies that the related instruction curriculum is comprehensive at present and is meeting most of the needs of industry and apprentices.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Slack, Neill, C.
(Last name) (First name) (Middle name)

Exact Title ORIGIN AND DEVELOPMENT OF INDUSTRIAL EDUCATION IN NEBRASKA TO 1960

Degree granted Ed.D. Date No. of pages in report

Granted by University of Missouri Columbia, Missouri
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to compile the history of industrial education of Nebraska into one organized treatise by tracing the development of significant aspects of this phase of education from its origin until 1960.

Source of Data and Method of Study:

Data were assembled from a variety of sources using the historical method of research and a questionnaire to reveal some contemporary information.

Findings and Conclusions:

There has been poor understanding of the meaning and purpose of various aspects of industrial education by administrators, lay public and instructors. The size of communities and number of pupils enrolled in school systems has had direct relationship to the type and effectiveness of industrial education programs. A few larger schools have developed strong, well rounded course offerings. Coordination has been lacking at the national, state and local levels. There has been no state supervision for industrial arts. The development, growth or change of industrial education has been dependent upon individuals in positions or responsibility. The influence of sincere, dedicated persons has been emphasized more when they were responsible for larger programs. The existence of state and local vocational-industrial programs has been extremely valuable and effective during national emerencies. Growth of vocational-industrial education has not kept pace with the expansion of industry in Nebraska. There has been little appreciation of the value of preserving data or recording the developments of industrial education for future reference or interpretation.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Sommer, Seymour, A.
(Last name) (First name) (Middle name)

Exact Title THE USE OF SILENT SINGLE CONCEPT LOOP FILMS TO FACILITATE THE ACQUISITION OF OCCUPATIONAL SKILLS.

Degree granted Ed.D. Date 1971 No. of pages in report 155

Granted by Rutgers University New Brunswick, New Jersey
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche (x) E.R.I.C. (x)

Purpose of Study:

The primary purpose of this study was to discover if the use of silent single concept loop films (SSCLF) could facilitate the acquisition of manipulative occupational skills for nonacademic students. A secondary purpose was to investigate the effect of SSCLF on the teaching-learning climate.

Source of Data and Method of Study:

The experiment involved the introduction of entirely new subject matter for which a pretest was not possible; therefore, the design considered most suitable was the Posttest Only Control Group Design No. 6 as described by Campbell and Stanley (1966) Subjects were 42 eighth and ninth graders, mean IQ 82.9; reading level 4.8; boys and girls; black and white; vocational school bound. Acquisition of skill was inferred from performance test on a simple manipulative baking skill learned by three different treatments: Teacher Only; Teacher + SSCLF; SSCLF only.

Findings and Conclusions:

The major findings of the study were: (1) students acquired significantly more skill (.05) with Teacher + Film than with either of the other treatments; (2) there was no significant difference in the acquisition of skill between Teacher Only and Film Only treatments; and, (3) as measured by student conversation, shop climate tended to be more conducive to the acquisition of skill in the presence of the intervention.

Additional findings of the study were: (1) boys and girls responded similarly to SSCLF; (2) even with SSCLF, Ss who were not motivated in the specific shop are of this study (Commercial Foods & Baking) failed to improve their performance scores; and (3) the use of SSCLF tended to lessen the S's need for personal assistance by the teacher.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Sommers, Wesley, Sherran
(Last name) (First name) (Middle name)

Exact Title THE INFLUENCE OF SELECTED TEACHING METHODS ON THE DEVELOPMENT OF CREATIVE THINKING.

Degree granted Ph.D. Date 1961 No. of pages in report 170

Granted by University of Minnesota Minneapolis, Minnesota
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To investigate the feasibility of improving creative thinking within the framework of existing subject matter courses.

Source of Data and Method of Study:

Subjects included in the experiment were randomly selected from students who had pre-registered as 1960-61 Industrial Education freshmen at Stout State College, Menomonie, Wisconsin. The experiment was conducted during the first academic quarter of 1960-61; it was repeated during the second academic quarter of 1960-61. The subject matter area selected for the experiment was drafting; the subject matter course chosen was Freehand Drawing--one of eight shop-laboratory type courses required of all Industrial Education freshmen at Stout State College. An experiment was designed and conducted during the fall of 1960 to investigate the following hypothesis: The use of specific teaching methods designed to increase certain creative thinking abilities will increase those abilities without affecting learning outcomes of an industrial arts laboratory type course.

Findings and Conclusions:

1. It is possible, by the use of specific methods designed to increase creative thinking, to improve certain abilities associated with creative thinking in an industrial arts laboratory type course.
2. The use, in an industrial arts laboratory course of special methods to improve creative thinking, will not negatively affect subject matter learning. In fact, the use of such methods actually increased subject matter learning.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Stadt (Last name), Ronald (First name), Wilmer (Middle name)

Exact Title A METHOD OF SELECTING CONTENT FOR LENDING INTELLIGIBILITY TO INDUSTRY: A CRITIQUE AND A PROPOSAL.

Degree granted Ed.D. Date 1962 No. of pages in report 129

Granted by University of Illinois (Name of Institution) Urbana, Illinois (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

At least two factors indicate that a re-examination of industrial arts education is desirable. (1) There is some evidence that industrial arts education is failing to achieve one of its major objectives, i.e., to develop in youth an understanding of contemporary industry. (2) The curriculum designer is faced with a profusion of industrial arts curriculum proposals.

Source of Data and Method of Study:

Any solution to a curriculum problem of this magnitude should be achieved by relating the elements of the problem to some over-all conception of the purpose of education . This investigator chose to use the theory which has been developed by Dr. Foster McMurray.

Findings and Conclusions:

Because no contemporary method is compatible with the above principles, a method of selecting content which lends intelligibility to industry must be developed. Because instructional materials which well develop intelligibility of industry must come from a variety of sources, educators should (1) select people from the specialties which study aspects of the forces generated by industry and which develop principles of industry and (2) guide them in the work of identifying forces and selecting refined and dissiminated intellectual and esthetic materials from the literature of their respective fields. After content is selected educators should seek solutions to three related problems -- how should the content be communicated, when should the content be communicated, and by whom should the content be communicated?

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Svendsen, Ethan, Andrew Tange
(Last name) (First name) (Middle name)

Exact Title THE MATRIX OF A PHILOSOPHY FOR INDUSTRIAL ARTS EDUCATION: SOME IMPLICATIONS FOR THE STATUS OF MODERN INDUSTRIAL ARTS EDUCATION OF CERTAIN ANTECEDENTS IN EDUCATIONAL PHILOSOPHY AND PSYCHOLOGY.

Degree granted Ph.D. Date 1961 No. of pages in report 207

Granted by University of Minnesota Minneapolis, Minnesota
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

Physical activity and reflective thought as these were involved in the developmental history of industrial study in secondary education.

Source of Data and Method of Study:

A basis for analysis and criteria for evaluation and criticism have been derived.

Findings and Conclusions:

1. Restore the liberalizing qualities latent in industrial education by seeking out the modern extensions of Dewey's psychology of experience in education. This means the investigation of industry and its technology by problem-solving methods involving overt activity and reflective thought.
2. Offer resistance to any force which seeks to confine the theory and practice of industrial arts education to trade and fabrication activities and knowledge.
3. Seek broader content, now available in modern industry and technology, to provide a proper medium for activity and reflective thought.
4. Promote problem solving as an experimental approach to learning. Avoid formalization of it into a fixed pattern. Encourage its adventurousness as the true spirit of teaching and learning.
5. Recognize individual differences in capacity and interests by establishing course to suit and by implementing problem solving at all levels of ability and achievement.
6. Include the five preceding points in clear statements of theory, make valiant efforts to apply them in practice, and publicize them by means that are in addition to the display of the physical products which result.
7. In teacher education promote a profound understanding of the modern extension of Dewey's educational thought. Pursue a critical study of the history of industrial arts education, not of events only but of developing ideas, diverting forces, and favorable trends. Thus may the potential teacher be aided in developing a standard of values to help him resist perverting influences.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author	Taxis,	David,	Oliver
	(Last name)	(First name)	(Middle name)

Exact Title THE ROLE OF THE COUNTY INDUSTRIAL ARTS CONSULTANT IN CALIFORNIA

Degree granted Ed.D. Date 1962 No. of pages in report 314

Granted by	University of Southern California	Los Angeles, California
	(Name of Institution)	(City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine the role of the county industrial arts consultant in California.

Source of Data and Method of Study:

Experiences and viewpoints of five groups of educators were obtained by means of questionnaire techniques. Respondent groups were (1) district superintendents, (2) district industrial arts supervisors, (3) industrial arts teachers, (4) teacher educators, and (5) county consultants.

Findings and Conclusions:

FINDINGS:

(1) The five groups of respondents were of the opinion that no item among the 67 listed in the check list was a district-only function. (2) The five groups were of the opinion that no item was a county-only function. (3) All five groups indicated that 27 of the items were clearly combined district-county functions. (4) All five groups responded that 40 of the items were not functions only of the district. (5) All five groups indicated that 62 of the items were not functions only of the county. (6) Each group visualized a different role for the county industrial arts consultant (7) There was complete agreement concerning 62 per cent of the items in the area of administration and executive duties, 69 per cent in the area of professional improvement, 71 per cent in the area of instructional program, 45 per cent in the area of equipment and supplies, and 83 per cent in the area of housing. (8) Items having a service connotation were frequently classified as combined functions of district and county. (9) Also classed as combined district-county functions were items requiring proficiency in technical skill and understanding, curriculum development, and human relations.

CONCLUSIONS:

(1) There is a useful and identifiable role for the county industrial arts consultant in California. (2) This role touches on five major areas: (2) administrative and executive duties, (b) professional improvement, (c) instructional program, (d) equipment and supplies, and (e) housing. (3) No supervisory functions fall within the exclusive responsibility of the county industrial arts consultant. (4) The role of the county industrial arts consultant requires that he possess proficiency in subject matter, technical skills, curriculum development, and human relations.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Taylor (Last name), Cyrus (First name), Byrdart (Middle name)

Exact Title MECHANIC ARTS PROGRAMS IN LAND-GRANT COLLEGES ESTABLISHED FOR NEGROES: A STUDY OF THE TYPES AND STATUS OF THE PROGRAMS OPERATING AND AN ANALYSIS OF SELECTED FACTORS THAT INFLUENCED THE DEVELOPMENT OF THESE PROGRAMS.

Degree granted Ph.D. Date 1955 No. of pages in report 141

Granted by University of Minnesota (Name of Institution) Minneapolis, Minnesota (City, State)

Where Available: Microfilm (xx) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To ascertain the status and types of mechanic arts programs operating in land-grant colleges that had been established for Negroes and to determine which selected factors, if any, had operated to influence the development of these programs.

Source of Data and Method of Study:

The study presented programs of land-grant colleges as a group and not as a compariso of individual colleges. The study was limited in scope to seventeen land-grant colleges established for Negroes. Data were collected by visitations to border state schools, the interview and questionnaire techniques, and an analyses of institutional catalogues and selected governmental documents.

Findings and Conclusions:

Social-economic and employment trends are improving in the south. This fact along with the influence of the May 1954 Supreme Court decision, suggests a re-direction of the program of land-grant colleges once established for Negroes. The educational programs of each state, favorable community attitudes, the adequacy of facilities in mechanic arts departments, and the location of schools should be major factors to be considered in the new-orientation. Mechanic arts departments must now evolve programs to meet manpower needs differing from the pattern imposed by the occupational color-caste system. Departments that fail to meet this challenge may encounte more and more difficulty in obtaining public support.

SOURCE SHEET FOR SUMMARIES OF STUDIES IN INDUSTRIAL ARTS,
TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Thomas, Wade, Jr., F.
(Last name) (First name) (Middle name)

Exact Title AN INVESTIGATION OF OPERATIONAL RELATIONSHIPS BETWEEN VOCATIONAL AND BOTH UNIVERSITY TRANSFER AND GENERAL EDUCATION PROGRAMS IN PUBLIC JUNIOR COLLEGES.

Degree granted Ed.D. Date 1957 No. of pages in report 221

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

1. Establish criteria for determining effective operational relationships between vocational programs and both transfer and general education programs in junior colleges;
2. To identify practices which are designed to establish effective operational relationships between vocational programs and both university transfer and general education programs in selected public junior colleges in Southern California;
3. Identify practices favored and proposed, by representative junior college administrators, teachers, and students, for establishing effective operational relationships between vocational and both university transfer and general education programs.

Source of Data and Method of Study:

The colleges selected for investigation, all located in Southern California, ranged in full time day enrollment from 806 at Santa Ana College to 4,023 at Pasadena City College.

Findings and Conclusions:

(1) Schism and divisiveness, rivalry and conflict between vocational and academic programs, when carried on in the same institution, appear, to a greater or less extent, to be an almost universal phenomenon. (2) Administrators and teachers interviewed believed that the vocational-academic gap in junior colleges could be reduced through the use of certain practices and procedures. (3) Developing effective operational relationships between academic and vocational areas of the educational program must be an all-college undertaking which involves administrators, teachers, student personnel workers, students, finances, and plant facilities. (4) Preplanning and action to integrate faculty and students, courses and activities at the birth of an institution will, in large measure, prevent schisms from developing. (5) Helpful action can be taken at any time for the purpose of integrating faculty and students, courses and activities in junior colleges which have vocational, university transfer and general education programs.

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TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Vineyard (Last name), Benny (First name), Stinson (Middle name)

Exact Title AN EVALUATION OF THE INDUSTRIAL SUPERVISION CURRICULUM AT SOUTHERN ILLINOIS UNIVERSITY.

Degree granted Ed.D. Date 1962 No. of pages in report 172

Granted by Indiana University (Name of Institution) Bloomington, Indiana (City, State)

Where Available: Microfilm (☒) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To evaluate the extent which occupational needs of graduates had been met through the industrial supervision curriculum offered by the industrial education department of Southern Illinois University.

Source of Data and Method of Study:

The investigation was limited to the 1955 through 1961 graduates of the program and to the present employers of these graduates. Research instruments developed and used were an information request form completed by 138 graduates of the industrial supervision curriculum, a rating scale for evaluation of graduates' work performance used by 56 supervisors, and an interview schedule followed during 20 conferences with industrial personnel managers and administrators.

Findings and Conclusions:

1. The facts that a majority of the 1955 through 1961 industrial supervision program graduates were employed in positions closely related to areas of preparation; that they had retained positions, gained promotions, received salary increases, and reported job satisfaction; and that they received good ratings from their supervisors seemed to indicate the program had achieved its aims to this extent.
2. Industrial administrators, personnel directors, and supervisors of the industrial supervision graduates seemed to look favorably upon the industrial supervision program as a source of technically and professionally prepared employees.
3. It appeared there was need to increase present requirements in the physical sciences for persons interested in technical specialization, to increase course requirements in mechanics and in strength of materials, to allot more hours to elective courses to meet individual vocational objectives, and to foster higher status for the college degree with a major in industrial supervision.
4. Responses to the research instruments indicated the need for increased knowledge of efficient use of machines and equipment achieved through demonstration of production techniques.
5. A majority of the graduate respondents would have pursued an engineering curriculum had such been available at Southern Illinois University while they were enrolled in the University.
6. There seemed to be little bias in the graduates evaluations of preparation in industrial supervision with no significant coefficient of correlation was found between salaries, academic records, job satisfaction, and responses to statements concerning specific aspects of the program.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Voelkner, Alvin, Ronald
(Last name) (First name) (Middle Name)

Exact Title THE DEVELOPMENT AND EXPERIMENTAL EVALUATION OF AN INSTRUCTIONAL UNIT RELATING TO MANAGEMENT.

Degree granted Ph.D. Date 1970 No. of pages in report 119

Granted by Purdue University Lafayette, Indiana
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To develop a comprehensive unit of instruction covering basic management information for use in the seventh and eighth grade industrial arts setting; to conduct an experimental evaluation of the instructional unit and the method of presentation.

Source of Data and Method of Study:

The unit of content was outlined, 3-5 illustrative examples were provided for each management concept, student exercises were suggested, and a criterion test was developed by the researcher. Three separate experiments were conducted using intact groups of junior high school students, with the same 59-item test administered before and following instruction.

Findings and Conclusions:

The unit of instruction was effective for teaching principles of management in the industrial arts setting. Eighth grade students did not achieve at a higher level than seventh grade students. Students exposed to the content in separate classes differed significantly in their mastery of the concepts of management.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Wakita (Last name), Osamu (First name), Authur (Middle name)

Exact Title A STUDE OF THE RE-ORGANIZATION OF JUNIOR COLLEGE ARCHITECTURAL CURRICULUM.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of the study is to establish one of the bases for the architectural educators in the development of a logical sequence of courses, as reflected in the opinion of those in the profession of architecture, for a more effective architectural curriculum in the junior college.

Source of Data and Method of Study:

The procedure to accomplish the objective of this study composed of collecting documentary architectural background data and current architectural data through review of literatures, and of interveiwing professional organizations (Cabrillo and Pasadena Chapters of the American Institute of Architects) and professional architectural educators. A survey questionnaire was developed and transmitted to the corporate members of both A.I.A. chapters.

Findings and Conclusions:

1. Architecture is basically a small crafts profession since most architects (over 70%) work for firms of less than nine employees.
2. The high response and ranking to certain questions indicate that certain areas of studies can be delegated exclusively to the junior college.
3. A total architectural education must be accomplished by a combination of junior colleges, senior institutions and architectural offices.
4. The fundamental responsibility of the junior college is to provide students with a good lower divisions.
5. Necessary mathematics background vary with the education of the student, whether a two year, four year design student, or a four year architectural engineering student.
6. Junior college architectural programs sould undergo some type of accreditation similar to senior architectural schools.
7. Total acceptance of the junior college architecture by senior institutions is necessary.
8. Junior college architectural curriculum should promote technician training.
9. Establish a guide line for teachers in cooperation with the A.I.A. for standardization of architectural education.
10. Develop entrance test for architectural students.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Walker, Joe, , W.
(Last name) (First name) (Middle name)

Exact Title A COMPARISON OF THE EFFECTIVENESS OF TWO APPROACHES TO TEACHING ENGINEERING DRAFTING.

Degree granted Ed.D. Date 1970 No. of pages in report 114

Granted by North Texas State University Denton, Texas
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this investigation was a comparison of two approaches to teaching engineering drafting at the college level.

Source of Data and Method of Study:

Data were obtained from 127 students enrolled in engineering drafting. The study was experimental and involved 64 students in the control group and 63 in the experimental group.

Findings and Conclusions:

1. With regard to general drafting knowledge, the typical unit approach to teaching engineering drafting is no more effective than the idea communication approach.
2. In the development of critical thinking ability, the typical unit approach to teaching engineering drafting is no more effective than the idea communication approach.
3. With regard to ability to produce working drawings, the typical unit approach to teaching engineering drafting is no more effective than the idea communication approach.
4. Students with higher levels of critical thinking ability attain a greater degree of general drafting knowledge than students with lower levels of critical thinking ability.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Warren, William, Herbert
(last name) (first name) (middle name)

Exact Title THE EFFECT OF TWO REINFORCEMENT STRATEGIES UPON THE LEARNING OF AN INTELLECTUAL TASK.

Degree Granted Ph.D. Date 1970 No. of pages in report 161

Granted by Purdue University Lafayette, Indiana
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To test learning reinforcement (immediate and delayed) of an intellectual task.

Source of Data and Method of Study:

Tests administered to Indianapolis applicants for a real estate State examination (N-51).

Findings and Conclusions:

No significant differences were found. The most important variable seemed to be the subject's mental ability.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Washburn, Kenneth, Reburn
(Last name) (First name) (Middle name)

Exact Title A COMPARATIVE ANALYSIS OF THE MATHEMATICS USED IN INDUSTRY BY ELECTRONIC TECHNICIANS HAVING AN ASSOCIATE DEGREE.

Degree granted Ed.D. Date 1971 No. of pages in report 161

Granted by University of Northern Colorado Greeley, Colorado
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

The purpose of this study was to collect data to determine the mathematical concepts used in every day industrial work by technicians in the area of electronics.

Source of Data and Method of Study:

The method and procedure utilized in this study were descriptive. Sources used in the construction of the instrument were (1) related studies which had established the basic concepts deemed necessary by industrial personnel and educators, (2) textbooks pertaining to mathematics for electronic technicians, and (3) a course syllabus of required mathematics for electronic technicians at New Mexico Highlands University. Questionnaire forms were mailed to 55 graduates of the New Mexico University technology program and to 115 graduates of other institutions who were working in industry.

Findings and Conclusions:

The study revealed that a wide range of mathematical concepts were used in industry by electronic technicians. Lower level jobs required the use of basic mathematics, whereas, the high level jobs required the use of calculus. The majority of the tasks performed by electronic technicians required the use of algebra and trigonometry concepts.

The data indicate graduates are found in all levels of technician work but a majority were found in the higher level jobs. The data provide a basis for the conclusions that low level jobs are held by a majority of non-degree personnel.

The majority of the graduates felt adequately prepared in mathematics to perform the duties required of their job. There was evidence that some technicians felt over-educated in mathematics. Thus, much of their mathematical background remained dormant since they were not required to use it.

The data revealed a desire of the technicians to have mathematical courses structured using electronic principles and to have the electronic technology department teach the mathematics.

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TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE.

Author Webster (Last name), Jay (First name), Leroy (Middle name)

Exact Title THE CURRENT STATUS OF POWER MECHANICS PROGRAMS IN THE UNITED STATES.

Degree granted Ed.D. Date 1970 No. of pages in report

Granted by University of California (Name of Institution) Los Angeles, California (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine the present status of industrial arts power mechanics programs in America.

Source of Data and Method of Study:

The population and sample for the investigation was the teachers of power mechanics in the secondary schools and colleges in the United States. A mailed questionnaire was used to collect the data. A total of 1464 questionnaires were mailed. A total of 1091 usable questionnaires were returned for a 74.5 per cent response. The junior high teachers were mailed 301 questionnaires and returned 242 or 79.0 per cent. The high school teachers were mailed 1036 questionnaires and returned 737 or 71.5 per cent. The college teachers were mailed 129 questionnaires and returned 112 or 84.0 per cent.

Findings and Conclusions:

The study established in part that: (1) power mechanics is a fairly large industrial arts curriculum area; (2) power mechanics is a growing instructional area; (3) power mechanics programs are well distributed across the country; (4) power mechanics instructors are not trained in this field; (5) power mechanics is defined as a study of energy sources and machines that convert energy into useful work; (6) power mechanics should be a part of the curriculum because of the importance of power to our culture; (7) no one organizational scheme dominates the field; and (8) the content presented at the various instructional levels differ significantly.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Weffenstette, Walter, Everett
(Last name) (First name) (Middle name)

Exact Title THE EFFECT OF LABORATORY EXPERIENCES ON THE LEARNING OF BASIC ELECTRONICS WHEN A PROGRAMMED INSTRUCTIONAL SYSTEM IS EMPLOYED.

Degree granted Ph.D. Date 1965 No. of pages in report 114

Granted by Southern Illinois University Carbondale, Illinois
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To determine whether or not laboratory experiences make a significant contribution to the learning of basic electronics when a programmed instructional system is employed.

Source of Data and Method of Study:

Eighty-eight students were assigned into two groups by their rank on SCAT and were further subdivided into those above and below the fiftieth percentile. Both groups met in a common lecture session for three hours per week where a programmed instructional system was used. The control group attended an additional six hours per week of related laboratory but the experimental group did not. Basic Electricity: A Programmed Text by Schure was used as the basic text.

Findings and Conclusions:

There were no statistically significant differences between methods, groups, or previous industrial arts instruction at the five per cent level when compared with the criterion measure for gain and retention.

There were some significant differences at the five percent level in group performance on three topic tests and between methods on one topic test.

The amount of correlation between criterion gain scores and personality traits was insignificant.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author West (Last name), William (First name), Elmer (Middle name)

Exact Title THE INFLUENCE OF THE INDUSTRIAL ARTS CURRICULUM PROJECT'S CURRICULUM MATERIALS ON THE OCCUPATIONAL CHOICES OF EIGHTH GRADE MALE STUDENTS.

Degree granted Ph.D. Date 1969 No. of pages in report 166

Granted by The Ohio State University (Name of Institution) Columbus, Ohio (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To provide experimental information on the occupational choices of eighth grade male students by a comparison of the occupational choices of three differential groups of eighth grade male students.

Source of Data and Method of Study:

Three groups of eighth grade males (1 - traditional industrial art courses, (2 - No industrial art courses, and (3 - IACP were administered The Ohio Vocational Interest Survey. The analysis of variance was used to test the difference in the scores of these three groups in terms of clarity of interest, strength of interest, and range of interest scores as determined by the OVIS.

Findings and Conclusions:

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Wijeyewardene, Jalutara,
(Last name) (First name) (Middle name)

Exact Title VOCATIONAL GUIDANCE IN NEW NATION.

Degree granted Ed.D. Date 1960 No. of pages in report 304

Granted by University of California Los Angeles, California
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To formulate an effective program of vocational guidance for Ceylon for a period of ten years, starting from 1957.

Source of Data and Method of Study:

Criteria will be established by a survey of current theory and practice in guidance, counseling, pupil and student personnel services in the United States to provide standards against which the progress of the developing vocational guidance program of Ceylon may be evaluated. The extent to which such criteria can be applied to meet the needs of the new nation will be accounted for.

Findings and Conclusions:

1. That the program of Vocational Guidance in Ceylon which is now in operation be expanded on planned lines during the next six years as presented in the two Five-Year Plans given in Chapter VI.
2. That vocational guidance be conceived as Total Guidance designed to begin with the school system and rapidly expand to universities, vocational training institutions, employment services, industry, commerce, agrarian activities, and to the community.
3. That guidance and personnel services should develop under the auspices of the Ministry of Education because of its relative freedom to operate its services; its intimate knowledge of the close ties with local conditions, needs, and communities; its traditional concern with the promotion of religion and the dignity and worth of the individual.
4. That the following guidance and counseling services be developed in all institutions of elementary, secondary, and higher education: (a) Record Keeping Service, (b) Informational Service, (c) Pupil Inventory Service, (d) Counseling Service, (e) Testing Service, (f) Youth Employment and Follow-up Service, (g) Extension Service.
5. That a Vocational Guidance Center be established immediately at Colombo and a second one later at Kandy.
6. That the training and certification of guidance personnel such as Teacher-Counselors, Counseling Psychologists, Youth Employment Officers, Vocational Guidance Officers be conducted by the Vocational Guidance Centers at Colombo and Kandy.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Wilkes, Doran, F.
(Last name) (First name) (Middle name)

Exact Title A COMPARISON OF TWO APPROACHES TO THE TEACHING OF ENGINEERING DRAWING: FILM SLIDES VERSUS THE CONVENTIONAL APPROACH

Degree granted Ed.D. Date 1966 No. of pages in report

Granted by University of Missouri Columbia, Missouri
(Name of Institution) (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

To compare the relative effectiveness of two instructional approaches to the teaching of engineering drawing.

Source of Data and Method of Study:

Film slides were used in presenting instruction to an experimental group while a control group was taught by the conventional approach of sketching on the chalkboard. The experiment involved 140 engineering students enrolled in engineering drawing at Brigham Young University during the 1965-66 school year.

Findings and Conclusions:

To the extent that generalizations can be drawn from available data, the following conclusions are drawn from the experiment:

1. The teaching of engineering drawing using the comprehensive film slides appears to be a more effective means of teaching than the conventional chalkboard approach in terms of instructional information, ability to visualize, quantity of work completed, student attitude, and time required for presenting instructional information.
2. The two approaches appear to be equally effective in terms of quality of work completed by the students.

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TRADE AND INDUSTRIAL, AND TECHNICAL EDUCATION
JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Williams, Michael,
(Last name) (First name) (Middle name)

Exact Title THE ORIGIN AND DEVELOPMENT OF CROOM VOCATIONAL HIGH SCHOOL FOR DISADVANTAGED YOUTH WITH A FOLLOW-UP STUDY OF THE STUDENTS WHO ENTERED THE SCHOOL IN SEPTEMBER, 1967.

Degree granted Ph.D. Date 1970 No. of pages in report 361

Granted by University of Maryland College Park, Maryland
(Name of Institution) (City, State)

Where Available: Microfilm (x) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

(1) To present a description of an existing vocational education program for disadvantaged youth; (2) to follow-up the students who entered in September, 1967.

Source of Data and Method of Study:

To determine employment status, a review of accessible records at Croom Vocational High School and personal interviews with school staff and students, former students, and employers of the former students.

Findings and Conclusions:

The unemployment rate for graduates and those who withdrew from Croom was 8.8% which was lower than the national unemployment rate for persons below the age of 25 years. One third of the graduates were employed in occupations in which they received most of their training. 54.6% were employed in occupations in which they had received some exposure while at Croom.

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JOINT RESEARCH COMMITTEE - AIAA - ACIATE - NAITTE

Author Wrigley (Last name), Margaret (First name), (Middle name)

Exact Title A STUDY OF THE RELATIONSHIPS BETWEEN THE SCORES OF PRACTICAL NURSES ON THE LICENSING EXAMINATION AND RATINGS OF THEIR PERFORMANCE ON THE JOB.

Degree granted Ph.D. Date 1968 No. of pages in report

Granted by Florida State University (Name of Institution) Tallahassee, Florida (City, State)

Where Available: Microfilm ( ) Microfiche ( ) E.R.I.C. ( )

Purpose of Study:

This was a comparative study of the relationship of the Licensed Practical Nurse (LPN) licensing examination and a job performance rating of LPN's by the Registered Nurses (RN's) who worked with them. Since practical nurse education programs are provided to produce competent LPN's, the need to validate the licensing examination as an indicator of subsequent job success seemed to be logical.

Source of Data and Method of Study:

There were 107 subjects, all LPN's and all graduates of six approved programs of practical nursing. Each subject was rated at least twice by different RN Supervisors who had supervised her work. Instruments used were (1) the National League for Nursing (NLN) licensing examination and (2) an adaption of the Descriptive Rating Scale as used by the U.S. Employment Services. Pearson product moment coefficients of correlation were computed with the exception of the marital status wherein a Chi Square was computed and the exception of educational attainment.

Findings and Conclusions:

It was concluded that the job performance rating scale and the licensing examination measured different content and different dimensions of nursing. It should be observed, however, that almost all LPN's are in fact successful. Hence, the NLN licensing examination cut off point may have been too restrictive. In other words, many of whom might have become successful as practical nurses may not have been permitted the opportunity.

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